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Galaxy

MAGAZINE

SCIENCE FICTION



Beginning

THE MOON CHILDREN

a novel about the war of the biocosms

JACK WILLIAMSON

A CONGREGATION OF VAPORS

William T. Powers



Lovecraft Lives!

—mainly because the stories he wrote and the concepts he invented are too gripping to stop reading ...or to stop writing. The roster of writers who have carried on Lovecraft's characters and ideas is a *Who's Who* of fantasy greats—August Derleth, Robert Bloch, Frank Belknap Long, Colin Wilson, Clark Ashton Smith, Henry Kuttner.

Beagle's ARKHAM EDITIONS now include works by these authors as well as HPL—and this month's offering is a prime pair from Derleth, *The Mask of Cthulhu* and *The Trail of Cthulhu*—a story collection and a novel about hapless mortals' involvement with the terrifying beings from between the dimensions—Cthulhu, Hastur the Unspeakable, Ying, the amorphous flute-player, and the Goat with the Thousand Young.

And next month, we'll have what is probably Lovecraft's solidest novel, *The Case of Charles Dexter Ward.*

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SCIENCE FICTION



MAGAZINE

ALL STORIES NEW

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EDITOR'S PAGE

UNLESS WE FEAR SOME EVIL . . .

The central theme of Robert A. Heinlein's *I Will Fear No Evil* continues to evoke its uniquely valid echoes of matters at hand and things to come. Thus Give a Gift of Life is the newest game and yours or mine may be the name.

Every player has a chance. No strings to Giver or Receiver. The Gift is made at your convenience —when you no longer need the item. Or is not made. You don't have to change your vote, your last will and testament, your friendships, dress style or length of hair in order to play. Without penalty and at any time, you may quit playing. Here's the scoop:

Mr. James Pendzick, computer programer/analyst at the University of Wisconsin and candidate for a Master's in mathematics, writes: "I have been a reader of your magazine on and off for several years, but it was Heinlein's *I Will Fear No Evil* that got me to subscribe. I am writing this in direct response to a line from your April ('71) *Letters 2* column: 'The National Rare Blood Club reports an unusually impressive response from your ranks . . .' I would like to request equal time for the National Kidney Foundation, which is trying to recruit organ doners . . ."

The Organ Donor Program of the National Kidney Foundation (315 Park Avenue South, New York, N.Y. 10010, if you want to look into it) is a little more than a year old, is not restricted to kidney transplants, and has spread up and down and across the land. Forty-nine of the fifty states, plus the District of Columbia, have passed the Uniform Anatomical Gift Act, with Massachusetts, at this writing, the sole holdout.

The Act transforms into a legal document a wallet-size card, which you may either carry next to your driver's license for as long as you live—or tear up and file in the nearest trash can, with nobody on Earth the wiser. Not even the two friends who witnessed your signature on the card. In your wallet the card remains—for as long as you want—the sole record anywhere that you are playing the game as a Giver.

Advances in medical science now make it possible to replace a variety of malfunctioning human organs. Techniques for transplanting kidneys and corneas are most advanced, but progress is being made in overcoming transplantation problems connected with the liver, pancreas, heart, bone and other tissue. The Uniform Donor Card permits you to specify, over your signature, how much or how little of yourself you care to Give to save a relative, friend or stranger.

Well over 2.5 million Uniform Donor Cards are now presumed to be nestling in the wallets of potential Givers. Since no records are kept, the exact number of cards active at any given moment is unavailable, but effects of the pro-

(Please turn to page 175)

SO impressive was the quality of your participation in the reader polls (particularly the December one) that we would purely love to put our money where your mouth is—e.g., pick your brains in behalf of your fellow readers.

Here's the idea: we'll pay $10 for a lead letter and $5 each for other letters to be published in *Galaxy* under the heading:

DIRECTIONS

Use this new department to push your pet peeve or dream. Be controversial if you like but be also constructive. Topics: you pick 'em but keep them in the science/science-fiction areas. Criticism, comment, speculation are fine, but make them well founded. Bias is okay when so identified. Abuse, bigotry—no.

Except for unusual instances not clearly foreseeable, correspondence simply commenting on *Galaxy* will be handled as before—without payment. It will be reported on at approximately six-month intervals. Your reward for such letters will be a magazine more tailored to your needs; ours will be knowing you.

Address correspondence intended for the new department to:

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A CONGREGATION

WILLIAM T. POWERS



OF VAPORS

With every man doing his best for those he loves, who needs outside enemies?



I

ON THE MOUNTAIN

A THICK pad of pine needles lay trampled into dust almost everywhere, but it was nonetheless a very decent campsite. Lying on the top of a ridge, it was separated from other sites by underbrush between the pines and spruce. There was a space under a tree for a tent. At night, when the winds blew, the susurrance in the needles high above made a restful background for sleep.

To the east trees marched downhill, so that the eye could reach above them across a distant wooded ridge to a great rocky peak. In the late afternoon sun the granite slope glowed a brilliant yellow against dark blue sky; the slopes below, nearer the campsite, were in shadow now and formed a dark green base for the composition.

Peter Lathrop stood by the campfire looking at the scene, then glanced at his watch. He drew a deep breath, held it, let it out, finished off the beer in his hand and threw the can aside.

"Grace, the air out here's so good you can taste it," he said.

"Not in here," a voice called back from the tent. "I'm changing the baby."

"Where are the kids?"

"How should I know? Down the hill by the big rock. Pete, you'd better get them."

"Yeah." Pete looked at his watch again, then headed toward a path leading downhill.

The path switched back twice and passed below a huge boulder imbedded in the side of the hill. On top of the boulder were four children. A teenager stood on the highest point, eyeing the glowing mountain. A smaller boy of perhaps nine and two girls, one ten or eleven, the other about five, small for her age, were variously occupied.

They saw Pete.

"Hi, Dad," the teenager said, "Come on up."

"No, you come down, Tim. And help the Peewee."

The Peewee said, "I don't want to go."

"Judy, you and Mike, too."

"Dad, can't we stay until dark? It's a long time yet."

"We're late already. We have to drive a thousand miles by day after tomorrow. Come on. Everybody off."

Mike said, "Come on up just for a second."

Pete started to get angry. "Mike, you get down right now. I don't want to go any more than you do. Now get down here, all of you."

With great reluctance the children made their way down, Tim going first and lifting the little ones to the ground. In single file, Pete bringing up the rear, they returned to the campsite. Grace emerged from the tent as they came into the clearing. She carried a baby and led a toddler of two by the hand.

"We have to go?" she asked.

"It's five o'clock."

An odd silence fell over the family, broken at length by the man. "Tim, you and Mike take the tent down. You girls carry the other stuff to the car."

While the older boys jumped on the folded tent, pressing air out of the canvas, the two little girls came up to the car with armloads of pine cones.

The older one asked, "Daddy, can we bring these?"

The man backed out of the Volkswagen.

"Now where would I put all those? Throw 'em back in the woods."

"Honey, can't they take a couple?" Grace's voice came from inside the car.

"You're not supposed to take anything. Oh, well—you each take two and throw the rest back." The girls ran happily a few feet toward the trees, dumped their loads on the ground and began discussing which were the best. The two boys brought the tent and heaved it atop the Volkswagen; it fit behind the suitcases and just in front of a large propane tank on a frame welded to the cartop; from the tank two copper lines ran down into the engine compartment.

Tim asked, "Can we take some, too?"

He and Mike joined the girls.

"Take one for Mother," Grace called.

"Look around, you kids, and see if we left anything," Pete said. "We're ready."

He gave a last tug at the strap holding the tent and suitcases down.

GRACE came out of the car and the children came up, holding their pine cones. They all looked at the mountain, now beginning to turn orange.

Tim asked, "Dad, do we have to go? Couldn't we stay one more day?"

"I don't want to go," the Peewee said and started to cry in a small, frightened voice. Pete simply stared at the mountain.

"Daddy, I hate it down there," Judy said. "I want to stay here." She started to cry, too, and that made the Peewee cry harder.

"Grace, get those kids in the car," the man said in a low voice, still looking at the mountain.

"Okay, honey. Sweetheart, you first, in the back. You, too, Peewee, and then Mike, next to the baby. Make room for Tim." She was hiding tears, too. "No, don't put your feet on those—we'll need them."

She took the toddler on her lap on the passenger side in front. The man turned from the mountain and got in.

"Might as well have the windows down," he said, starting the engine. A puff of burned oil came out the exhausts, momentarily obscuring the beer cans and paper plates behind the car.

"It was a good vacation, honey," Grace said.

From behind her came muffled sobs.

The car rolled off the grass and onto the dirt road leading downward among the trees. In a few hundred yards the road led past the picnic grounds, where people waved; nobody in the car waved back. On through the trees the car rolled, with a whine of second gear and the crunch of tires on gravel. Gradually the trees began to thin; they grew shorter and the under-

brush was brown around the edges near the road. Finally the road reached a sharp switchback with a wide shoulder and the man pulled the car to the side and parked.

"All right, get 'em out. Throw the bags in the back." No one moved and the man became angry. "Come on, can't you smell it? Put 'em on and roll up the windows."

Grace said, "Okay, babies, we have to. Tim, give me the little one and mine and Dad's."

Tim pulled three khaki bags from under his feet and passed them up front; he took out others and passed them around and all pulled at the straps.

"It looks like a pig's snout," Judy said, in tears. She pressed the blunt cone over her face, pushed her hair back to let the upper part with goggles fit against her forehead, pulled the elastic straps down behind her head. "I hate it."

"Stop crying—you'll fog up the eyes." the man said, his voice muffled by his own respirator. He looked in the rearview mirror and saw Tim leaning against the side of the car, his masked face turned to the upholstry. "Tim, do the baby first. I always have to tell you."

Tim said, not moving, "I'm not going to do the baby."

"God damn it—" the man started, but Grace put her hand on his arm firmly.

"I'll do it," she said. She opened her door, got out, stood the toddler on the ground, pulled the seat forward and leaned into the back. The baby began to scream. Finally the screams became muffled and Grace said, "Tim, no, Mike, you hold her hands, just till she gets used to it again." She backed out, picked up the grotesque little masked form waiting beside the car and got back in. The door slammed, the windows rolled up and the car moved on.

Around the bend the trees were almost all brown and the road was very dusty. Down the family coasted, past the ranger station. Finally they reached the last long gentle grade. The road ahead was hazy. It stretched down into thicker and thicker haze until it disappeared into a murky gray-yellow layer that reached to the visible horizon. The man gripped the wheel with both hands and stared straight ahead. The baby began to scream again and Peewee and Judy began to cry, too, as the car descended into the opaque cloud.

THE WATCHERS

THE survey plane broke into the clear at 3500 feet. A level plain, yellow-gray, with a fuzzy overlay and no distinct features, stretched to the horizon.

The pilot reached to his neck and keyed the microphone. "Survey, this is Survey Four. Four thousand feet, VFR on top."

"Survey Four, Roger. Arrive at intersection Yellow in two minutes."

"Survey Four, out."

The observer in the back of the converted 170 tapped the pilot. "Can we take off the respirators?"

"Go ahead." Both unsnapped the mouthpieces and let them dangle, the pilot adjusting his throat microphone.

"I don't see any breaks at all," the voice from the rear said.

"Set up. We make the run anyway. Intersection in one minute. Over Baltimore now, heading due west."

"Okay." The observer tweaked a knob or two on his portable control panel and watched the screen before him. His face was illuminated yellow by the displays. "Any time."

"Coming up—start."

The plane headed away from the sunrise in a straight and level line. A brilliant orange contrail grew a thin tendril toward Boston. The tendril hung stationary, then began to spread laterally as the combustion products formed nuclei for condensation. After a while the sky was empty, except for the contrail, which was now a ragged orange cloud nearly a half-mile wide to the south.

The survey pictures were being taken in several wavelengths, including infrared. A relay station in Baltimore picked up the signals and sent them by UHF repeater stations to Chicago, where the information was reconstructed into pictures on six screens at Survey Control, on a top floor of the Prudential Building. On this day pedestrians could not see the thirtieth floor of the building and the observers in Survey Control, on the fortieth floor, could see neither the street nor the top of the Sears building or the John Hancock building, sixty floors higher.

Two men were looking at the main monitor, which duplicated one of the six pictures flanking it. One man, standing and leaning over the other who was seated before the console, spoke.

"Well, Joe, any sense in recording this?" The screen showed only yellow-gray cloud floating downward endlessly.

"I don't know. We haven't had a break in the last ten days. I suppose we'd better, at least the infrared."

"Let's have the range blips on; I'll do it."

"Okay, Mac. It's all set up."

Macauley went to another chair and picked up a microphone. "Survey Four, this is Survey, over."

"Survey Four."

"Give us the range markers in infrared. Hold four thousand, and check calibration."

"Roger."

On the main screen and the corresponding small screen, two spots of ruby light appeared, wavered and converged into one. Numbers began to blink once per second at the bottom of the main monitor screen: 3528—3535—3570—3550—3510, showing small variations in altitude of the cloud top.

"What was it yesterday?" Joe asked.

"Around thirty-four hundred—it's a hundred feet thicker today. God."

Joe reached for the microphone and his voice broke into the formal singsong of the military radioman. "*Sur*vey Four, *this* is Survey, over?"

"Survey Four."

"*Re*check laser calibration *and* altitude at Fo-wer, zero, zero, zero?"

"Roger." The red spot became

two, then one again. "Survey, the calibration is down the middle and radar altitude converts to pressure altitude, four thousand point zero, zero. Stand by for barometer check."

In a moment the voice returned. "I verify calibration, Survey, over."

"Uh, *Ro*ger, Survey Four, *this* is Survey, out."

"I'd better talk this over with Taylor," Macauley said. "Record the infrared and the markers, Joe."

Joe flipped some switches, while Macauley left. Joe turned on an intercom and spoke into it. Through the control room window could be seen a large room, actually a converted TV stage in earlier days, where several dozen men in shirtsleeves sat before consoles. A voice crackled back from a small loudspeaker overhead.

"Right, Joe. We're talking to Denver and Salt Lake right now; we'll get on Survey Seven as soon as the Salt Lake frequency clears."

MACAULEY shut the door behind him and proceeded down a corridor to another door, marked: Midwest and Eastern Survey Control Headquarters. He nodded to the receptionist behind the low rail separating the waiting room from the rest of the office, made his way between desks where girls sat typing and knocked at the door lettered: Survey Control Coordinator, James X. Taylor.

A voice sounded within and he entered.

Jim Taylor was dictating to a stenographer. He looked up, said, "Hi, Mac, be with you in a minute—" and went on: "Let's see—'Ours is, of course, strictly a monitoring function, but our readings during the past ten days warrant an urgent warning.' No, strike 'warrant' and substitute: 'call for —The above concentrations of sulfur dioxide, carbon dioxide, carbon monoxide and particulates show a steady rise beginning on Tuesday, August seventh, nineteen-seventy-nine, and continuing to the present. The increase is steady. There has been great difficulty in pressing emergency measures any further. Mayor Finlay insists that high-grade coal reserves must be held for winter, since a heating emergency is already foreseeable. He insists also that any further reduction in line voltage, according to his engineers, would threaten the survival of Chicago and its suburbs.'"

Macauley pinched his nose and jabbed a thumb back over his shoulder. Taylor nodded and continued.

"'This is probably true. The filtration and refrigeration units all over the city are running underspeed, so that even forty stories up it is difficult to keep up with normal seepage.'"

He motioned to the stenographer and asked, "What is it, Mac?"

"Same, but worse. The top is up about a hundred feet over yesterday. No breaks on a line due west from Baltimore for two hundred miles so far."

"A hundred feet? Couldn't that be the Alleghenies?"

"Average."

"I see." Taylor thought, then sighed. "Okay, here goes. Stick around, Mac, you're going to have to back me up. Betty?" He resumed dictation pace: "'I consider this a situation of the utmost gravity. Our reports for the past ten days have been sent through normal channels, but in the absence of the Undersecretary there has been no official response to the attached special notices.' New paragraph.

"'In addition, it is becoming apparent that local authorities are attempting to deal with the problem in their own areas as if there were no problems elsewhere. Cities are competing with each other for a larger share of the power in the distribution grids; they have reached the point where they are operating with negative reserves and require power from the grid even to maintain the status quo. The latest expansion of power generation equipment in the city of Chicago has been accomplished by adding coal-burning equipment instead of nuclear power; natural gas and oil supplies are all but exhausted and there is sharp competition between transportation needs and home heating requirements for fuel—and of course, it is the same consumers who compete against themselves. All these factors have radically increased the output of pollutants in this area and very similar situations hold in all major cities within this Survey zone.' Paragraph.

"'As I mentioned earlier in more detail, we appear to have reached a point where the production of contaminants itself is calling forth measures which add more contamination than they protect against. The whole system is slowing down because of the near-impossibility of conducting normal business while at the same time maintaining life in an atmosphere that long ago passed the danger levels of concentration for most contaminants." Paragraph.

"'Now we see a new phenomenon entering the picture—the filling in of all breaks in the cloud cover over the entire Northeast quadrant of the country. Very soon this will endanger crops and already the change in upper-air conditions has caused—' strike that, Betty, substitute: 'appears to have caused a dropoff in rainfall and an alteration in the whole weather pattern. The cloud cover apparently began to thicken as the last breaks disappeared; the last report, which is current to the present hour, indicates that the thickening is proceeding without any indication of slowing down.' I said that already, Betty, but leave it in. Paragraph.

"We in Survey Control are unanimous—'" Macauley nodded to Taylor's questioning look—"'in the opinion that mere emergency measures have already failed and we see no possible chance of averting a major disaster. We have now only a choice between disasters—one we control and one that runs on out of control while ineffectual attempts are made to provide nearly normal conditions in a few isolated spots.' Paragraph.

"'My recommendations, which are based on what I believe to be a clear and self-evident set of facts, are as follows:' Mac?"

"Shut down the mills."

" 'One: All steel production, automobile production, oil refining, and non-nuclear power generation must cease immediately for a period of at least sixty days.' "

"No light."

"'Two: All use of electricity not vital to the maintenance of life must be forbidden indefinitely under the strictest penalties. This includes electrical home lighting, air conditioning but not filtration, office lighting, street lighting, use of electrical home appliances except for refrigerators. Also close down battery recharging stations.' "

"Cars."

"'Three: Single-occupant automobiles must be forbidden and within that provision only essential automobile, bus, train, or air travel is to be allowed, again with stiff penalties for violation, nonpolluting vehicles excepted.' "

"No, Jim, don't forget the battery recharging stations."

"Strike it, Betty. Is that enough, Mac?"

"Might be. I can't account for the thickening of the cover. Maybe something new has started that will go on by itself now, no matter what we do."

"You'd better be wrong. Betty? New paragraph. 'These measures clearly mean a suspension of all normal commerce and all attempts to conduct normal affairs. We have before us now only one task: to survive for sixty days. After that we can turn to the task of surviving for another sixty days with what we have left.' Respectfully submitted and so on. Fix the grammar and type it up, Betty—address copies to the mailing list I gave you."

The stenographer sat for a moment scribbling, snapped her book shut. She sat a moment longer, then rose, giving Taylor a look full of tears as she left.

"Smart girl," Taylor said. "If I had time I'd be crying, too."

"Will anyone listen? Whom are you sending it to?"

"Secretary of the Interior. White House. Copies all over the place. They'll be carried back by Survey One tonight."

"Then we'll get a response tomorrow or Friday."

"Or we'll go to Washington!"

"What about the Undersecretary? You're bypassing him."

"He's studying future pollution problems in Alaska with his wife and children and a guide who knows where some bears are."

"Is the meeting still on?"

"Three-thirty, all section chiefs. Bring Joe, he'll be up to date on Survey Four and tell him to get summaries on the other runs." Taylor sighed and swiveled his chair around to look out his window. Dim building shapes could be discerned in the haze. "I wish it were May instead of August. They'll be lighting up their furnaces in a month or so."

II

NIGHT FLIGHT TO D.C.

MACAULEY stood in the cabin of the business jet, talking to the pilot who had been in Survey Four. He put a briefcase in the copilot's seat, which was empty.

"I'd feel a lot happier if you weren't going alone."

"No sweat," the pilot said. "This ship is designed for one pilot and one observer and there'll be no survey tonight."

"The East Coast is absolutely solid."

"I said I'd do it. I read what's in those letters and I know what it looks like on top. I'm with you—why won't you take my word for it?"

"At least fuel up with safety fuel."

The pilot grinned. "That's what they're putting in. I changed the order after the last report from Dulles."

"Well, that makes me feel a little better—at least the plane won't burn if you rack it up."

"Cheery thought. I don't like that stuff—you have to keep the combustion temperature too high in order to make it burn and it leaves orange crap all over the sky. It doesn't seem right, especially when it's Survey One doing it."

"Forget it; if they follow our recommendations you'll be taking a stagecoach back."

A ground crewman came in the door with a clip-board. "Sign here."

The pilot signed and the crewman left. Macauley shook hands with the pilot and left also. Outside he turned and closed the door, then walked rapidly toward the terminal building while the crewman cleared away the steps and stowed the hoses back into the tanker truck. The day-glow orange truck pulled away as Macauley entered through the broad glass

Ballantine Books

IT IS April 5th. Fresh from the SFWA Banquet (well, "fresh" is hardly the word, but anyway) our head is filled with joy for Larry, winner of the Nebula with RINGWORLD. In June, we'll be doing Larry's next collection, ALL THE MYRIAD WAYS. And in August, the reissue of RINGWORLD along with Niven's earlier works. 1971 is the Year of Larry Niven—and proud are we to have a share in it.

•

UNRELIABLY informed by Judy-Lynn del Rey (it's Spring, after all) that we are meant to devote this column to books for May and June, we will nevertheless do so. More or less. May then, will see Annie's next dragon book—DRAGONQUEST, magnificent sequel to DRAGONFLIGHT (which is reissued, naturally). The dragons of Pern are a noble and lovable lot—and a breathtaking concept. Anne McCaffrey macushla, skoal! (Or whatever the local equivalent may be).

•

AND in May another face from the Irish scene, a new Dunsany. Well, its from so far back we guarantee none of our readers will be familiar with it. Trust Lin Carter, mining away among his 15,000-odd book library, to

turn it up, though. The title is DON RODRIGUIZ: Chronicles of Shadow Valley.

•

SOMEWHERE along in here we also released a very good anthology, VOYAGES, edited by Rob Sauer. It does not look like s.f., but ninety percent of it is. So buy.

•

INCIDENTALLY, for car nuts, whose numbers certainly include many a science-fiction fan, we are now doing an illustrated series, priced at only a buck. You ought to be able to find books on the Bugatti, the Alfa Romeo; also on Le Mans.

•

JUNE, now. A month for Robert Silverberg. A book which is not science fiction—but then, what **is**? So we'll talk about it anyway. It is certainly not like anything the Pope has ever written before. A sort of Fellini trip, if you will, in literary form. So emotional, these Italians. SON OF MAN—**don't miss**. And another Silverberg, this one more in the tradition, titled MOONFERNS AND STARSONGS, an elegiac title for sardonicus. And finally, an Oriental escapade titled VATHEK, by an utterly mad Englishman, William Beckford. Until July. (August, September, or whatever it may be).

BB

doors of the terminal building.

He arrived at the upper level in time to see the plane release its brakes and roll toward the taxiway, its high-intensity flasher operating and a rotating red beacon sweeping light across the fuselage and surrounding buildings. It appeared to be the only active plane and for good reason; the night was black out there and the red beacon rapidly became a reddish blob as the plane moved off into the murk. The jet glow was shot with orange streaks.

Macauley waited until the flashing red blob reappeared from behind a hangar, climbing, and he heard the faint jet sound through the window; then he turned and went out through the nearly empty terminal.

At 3800 feet the pilot saw the stars. On the eastern horizon the moon, in its last quarter, was rising; the pale light shone on the cloud cover, providing an easy reference for visual flight.

"O'Hare, this is Survey One leaving the control zone; request permission to change frequency."

"Roger, One—have a good trip."

The pilot removed his respirator. He took the plane to eighteen thousand; from there it looked as if he were flying over an endless ocean of milk. A few times he changed omni frequencies and twice he had conversations with control areas on the ground. The air was nearly still; he indicated 500 knots airspeed and computed only 520 knots ground speed with a direct tail wind. The jet stream had moved far north; it had not

flowed over the United States at all for six months.

He saw Cleveland as a dull red glow under the clouds, with Akron barely visible in the distance; Pittsburgh was not visible at all and Baltimore, when he passed over it, was only a suggestion of a glowing patch. By that time he was letting down.

"Dulles, this is Survey One."

"Survey One, Dulles."

"Request landing instructions, what else?"

"Negative, Survey One. We are now below minimums. Can you hold?"

"Estimate thirty minutes reserve, Dulles. Is anything going to change in thirty minutes?"

"Stand by, One." In a moment the operator was back. "Divert to Baltimore, One. We just had a power failure here and are on emergency power. The high-intensity approach is out."

"Roger, Dulles, out." He changed frequencies. "Baltimore, this is Survey One."

"Survey One, go ahead."

"I have been diverted from Dulles—can you take me? I'm about twenty miles north, letting down through eight thousand."

"We have a power failure here, One, and have no ILS. Accident on the runway. Can you hold?"

"Not long enough to matter; twenty-five minutes. Is your GCA operative?"

"Affirmative, the radar is operative."

"I have radar, too—you'll have to talk me in." The pilot turned on his radar and in a moment a wand of light was sweeping back and forth on the display. He adjusted the intensity until only the permanent targets showed.

"Stay on this frequency, One," a second voice said. "Turn on your transponder, please." The pilot did. "All right, we verify you eighteen miles northeast. Make a one-minute turn, one-eighty degrees."

"Roger." The horizon tipped gently and stayed that way as the plane circled. Then it steadied and flew for several minutes, letting down. "Baltimore, I indicate four thousand five hundred, does that agree with your reading?"

"Negative, your transponder shows you at three thousand nine hundred. We have no height-finding radar operative. Stand by." There was a pause, with the carrier still on. "One, we are going to take your altimeter reading, please advise every five hundred feet. You are left on the track, please turn ten right."

"Ten right."

"That's good, hold it. Get ready for ten left when I say."

"Roger."

"Get ready for ten left. Now. That's good. Have you the field on radar?"

"Affirmative, I think I see the wreck and the two runways. I appear to be lined up with the left one, is that correct?"

"Affirmative."

"Three thousand five hundred." He was in the soup.

"Roger, you are high, please increase sink rate."

"Roger." There was silence, then: "Three thousand." Pause. "Two thousand five hundred."

Again a pause. "Two thousand."

"Drifting right, One, correct left five."

"Roger."

"Right down the pike."

"One thousand five hundred."

"Stretch it out a little, One."

"Roger." The pilot added power briefly, then cut back again. "One thousand."

"Correct left, One, you're drifting left."

"Which?"

"Correction, correction—steer right ten. Right ten. Hold it. Now left ten. Have you the runway yet?"

"Negative. Ground clutter on radar, no visual. Five hundred."

The pilot flipped off the radar.

"All right, One, no further acknowledgments, please. Left five. Good. Hold left five—now correct two right. A little more. Good. You're over the inner marker now, maintain two hundred feet per minute. Drifting left again, correct right. More. All right, fast, ten right and ten left, *now*. Have you the runway yet?"

"Neg—" and that was all.

In the tower, the controller dropped his earphones around his neck and fell back in his seat. He raised his eyes to look through the window. An orange glow showed where the Allegheny Airlines flight had come to rest after wiping out the Instrument Landing System antennas. The rest of the field was black; the blue taxiway marker lights were invisible past the first row. He saw a faint glow moving away from the Allegheny wreck's location, probably an ambulance.

"Jack, take it, will you?" the controller called and stood up. He left the tower and made his way down to the apron. In a while an ambulance drove up.

"Is this the Survey jet that just came in?" he asked the driver.

"Yeah. It didn't burn, must have been using safety fuel."

"How many aboard?"

"One."

The controller moved to the back, where attendants were pulling out the stretcher; its wheels popped into place. A briefcase lay on top of the figure under the blanket.

"Is he bad?" the controller asked.

"That's a familiar voice," came from the stretcher. "Not dead, thanks."

"You were way left at the end."

"I'm alive. Wait a minute, you guys, I want to talk to him. Listen, you have to do something for me. Government business and important. Open this and read the instructions inside; then deliver the letters now, tonight, in D.C. There are some loose copies—read one. It has to be tonight, as soon as possible. Okay?"

"Okay."

"Good. Then let's get out of here. My legs hurt."

He couldn't have picked a better man. The controller had just talked two airplanes right into the ground because of faulty equipment and the worst sock-in ever to hit the East Coast.

COPING

GRACE and Pete dropped suitcases, towels and coats by the

door and herded the children in. Tim was carrying the baby.

Grace said, "Seal the door, Tim, I can't wait to get this thing off my face." She went into the TV room, flipping on the lights, and turned on the Filteraire that took up an entire window. Red lights came on in every room, blinking. "Kids, you can go to the bathroom, but leave the resps on until the green comes on."

Pete came out of the kitchen holding a can of beer, unopened.

"Come on, green," he said. "I'm thirsty."

"I'm thirsty," Peewee said and took off her respirator.

"Peewee!" Pete shouted and started toward her.

Peewee choked and tried to scream, but she coughed instead and grabbed for her mask. Pete took her mask in one hand and pressed it against her face while he picked her up around the middle with his other arm and ran with her into the TV room. He held her face in the strong draft of the Filteraire while she coughed and cried and struggled for breath.

Grace came running in. "What did she do? Pete? What happened?"

Pete was saying, "Take it easy, Peewee, don't breathe so hard—come on, honey, take it easy—Gracie, she's all right. It was only for a couple of seconds—her resp came off."

Finally Peewee sat up by herself, her head against the air outlet, and allowed the respirator straps to be readjusted. She was still coughing, taking long breaths and holding the mask tight with one hand.

"Pete, you spilled beer on—oh, it isn't open." Grace had made a trip to the front room. "Honey, here's your beer. The green is on."

Pete waved it away.

Cries came from the bedroom: "Green, everybody, green, the green is on!"

Tim came in, pulling his mask off. "They're in bed. I took the baby's off—she's wet."

Grace and Pete looked at each other, dangling their masks. She leaned forward and Pete kissed her.

"I like you better like this," he said. "Okay, Peewee."

He leaned down and pulled at the back elastic on Peewee's mask. Grace went off to see to the baby.

"No!" Peewee screamed and pushed him away, holding her mask on and crowding closer to the Filteraire. Pete dropped to his knees beside her.

"Honey, the air's all right now, see? Mine is off and Mommy's and Tim's. Look." But Peewee's eyes were shut tight behind the glass goggles and she said "No—no—no."

"Leave her alone for a while," Grace said, passing by the TV room door. "I'll get us something to eat."

She went into the kitchen.

"Dad—your beer," Tim said, holding it toward him. Pete stood up and took it, opened it.

"Not very cold. Hey, Peewee—" but the child huddled where she was.

Finally he turned and, noticing the television, switched it on.

"Should I turn off some lights?" Tim asked.

"Oh—sure, I forgot."

Tim went into the other room, came back and turned off all but one light in the TV room.

"You know, I think the voltage is down some more," Tim said, settling into his chair. "Look at that light—it's real yellow."

The picture struggled to life, rolling and dim. Tim rose and turned the vertical hold control, halting the rolling. "The control's all the way to one end," he said. A black band showed top and bottom. "What a lousy picture. Who's he?"

"Some kind of announcement, I don't know. Turn up the sound."

"It is up," Tim reported. "Oh, the tuning's way off."

He got sound.

SOMEBODY in a respirator was answering an unheard question. "No, we expect the north-side plant to be normal by morning." The camera switched to the questioner, a TV reporter whose mask was labeled NBC.

"Just what caused the breakdown, Mr. Spivak?"

Spivak sounded harassed, as if he had been answering the same question for different reporters all day. His mask, of course, showed no expression.

"As I just told Mr. Phillips, we aren't exactly sure. It seems that when the voltage was reduced last night—well, I should explain that a great many apartment buildings on the north side have installed voltage boosters to keep their tenants' voltage from dropping when the power company reduces its output. Of course the whole purpose of reducing power is to lessen the load on the generators. The voltage boosters thwart that purpose—in fact, they have just the opposite effect. When the voltage drops there are additional losses in the boosters themselves and the losses in the power lines are increased by the higher currents they pull. The result is that when the voltage is reduced the power load goes up instead of down."

"I see. So if everyone had a voltage booster—or regulator—there would be no way to reduce the load on the lines?"

"That is correct. The only way would be to drop the voltage so far that the regulators would stop working—and that, of course, is what happened last night. Unfortunately the drop was not carried out on purpose. The sewage treatment plant behind us here has very large pumps operated by electric power. Last night they were all operating, too—and they're what broke the camel's back. The voltage dropped, the pump motors stalled and then burned out, throwing a very heavy load onto the line. That finished off the generators."

"Mr. Spivak, that power station supplies a good part of the public housing and ghetto area as well as the high-rise apartment district, doesn't it? Did those people have regulators, too?"

"No. I would say not. Regulators are costly and, of course, there would be none in a public housing project."

"Then would it be fair to say that the people in the high-rises who had regulators are directly responsible for the four hundred

deaths we had here last night?"

"I'm afraid I can't comment on that. It is certainly true that the voltage regulators were a major contributing factor. There were many deaths in all areas."

"But many poor people don't own respirators for every member of the family and have to stay inside buildings equipped with filter systems. When the power was lost and the filters stopped—they had no chance, did they?"

"I'm afraid I do not have the answer to that question. Ask city hall. Will you excuse me now? I have to return to my duties."

"That was Mr. Arthur Spivak, chief engineer of the Sanitary District. Now back to our studios."

The picture changed to show two men without respirators seated at a low table.

"Thank you, Art Ferrier," one of them said. "This is Tom Friendly again, continuing our report on the North Side disaster. I have with me Mr. Anthony Capuzzo, Democratic alderman from the forty-second ward which was so hard-hit last night. Mr. Capuzzo, has the mayor been in touch with you?"

Capuzzo spoke in a rumbling bass. "His honor called me early this morning, yes. He extended his sincerest sympathy to the bereaved families of my ward. This has been a terrible experience for all of us."

"Mr. Capuzzo, what do you think was the main cause of the failure?"

"Well, Tom, we'll have to wait for the experts on that one; at the moment we're concentrating on a massive cleanup operation around the sewage plant and on restoring power in the areas where there is still a blackout."

"You heard Mr. Spivak, Alderman—do you agree that the voltage regulators were a major cause of last night's disaster?"

"I wouldn't want to jump to conclusions," Capuzzo said. "You must remember that the Sanitary District has been having difficulties with its equipment."

"Are you referring to the controversy between the mayor and Mr. Spivak over the purchase of equipment for sewage treatment and transport?"

"Well, Tom, I know that the newspapers have tried to make this into a controversy, but Mr. Spivak is a fine gentleman even if he is a Republican—" a genial smile — "and the mayor is in full communication with him. The failure of the two pump motors may have been caused simply by an unpredictable human error, faulty maintenance or any of a number of understandable factors. It is certainly true that the instant those two motors burned out the generating station was put out of commission. But I'm no expert. We'll just have to wait for an inquiry to be organized."

"Alderman, I understand that there were two deaths in the high-rise apartment where you live, but over two hundred in the Cabrini Homes. How do you account for that?"

"Tom, we're looking into that, believe me. I'm afraid I must leave."

"Mr. Spivak indicated earlier that it was because the high-rises generally have emergency power

for six to twelve hours, while the public housing projects have no provision for keeping filter units in operation in an emergency."

"I'm afraid Mr. Spivak is jumping to conclusions again. I'm sorry, Tom, but I must get back to my ward—you understand."

Grace's voice came from the kitchen. "Pete, come look at this mess!"

"Wait a minute," Pete called.

". . . for station identification," the announcer was saying. The picture suddenly started to roll.

"See if you can fix it, Tim," Pete said and went into the kitchen.

"Pete, everything in the freezer's mushy."

"There was a big power failure last night—they must have got our power back just before we got home. Look, the clock is wrong."

"But listen, doesn't the fridge sound funny?"

Pete cocked an ear. "Yeah. The voltage must be way low." He opened the freezer compartment and felt inside." It sure isn't very cold—no wonder my beer was warm."

Peewee came into the kitchen, still wearing her respirator. "Mommy, I'm hungry and thirsty."

"Take off the resp, honey. We'll have dinner soon—if there's anything that didn't spoil. Take it off, honey. Aren't you tired of it after three days?"

Peewee took off her mask. Tim came in.

"I turned it off," he said. "There's no more adjustment. I can't stop it from rolling."

Grace said, "I heard them talking about voltage regulators. What do they do?"

Tim said, "There's an ad in the paper—I was just looking at it. They say it keeps the voltage from changing."

"Do they work?" she asked Pete.

"I suppose so. They sell them."

"For the whole house?"

Pete got an interested look on his face. "Why sure. I suppose so."

Grace and he looked at each other, pleased.

"Sure," Pete said, looking at the refrigerator. "Why not?"

III

A QUESTION OF SECURITY

"IT'S hot today," Joe said, watching the gray-yellow wisps float downward on the screen. "Air-conditioning out?"

Macauley, drinking coffee, swiveled the other chair around. "Filters only today. Mayor's orders. Didn't you see the news this morning?"

"I don't watch it any more," Joe said.

Macauley picked up the mike.

"Survey Four, Survey."

"Survey Four." A woman's voice, this morning.

"Give us the infrared markers, honey."

"Roger. This is Survey Four, not honey. Out."

"Out." Macauley raised his eyebrows. "Touchy."

Joe said after a moment, "Thir-

ty-eight hundred feet. Up two hundred more."

"Survey Four, Survey."

"Survey Four."

"Climb to forty-five hundred and reset range calibration."

"Roger."

In a few minutes Joe said, "Same. Maybe thirty-seven fifty."

Macauley left, went to Taylor's office. It was even hotter in there. Taylor was apparently unoccupied. Macauley sat down.

"Did the letters get delivered?"

"I'm trying to find out," Taylor said. "You hear about the blackout in D.C. last night?"

Macauley looked startled. "I hadn't made the connection. He wouldn't have landed there. Where did he go—Baltimore?"

"Yeah, but he didn't make a very good landing. I understand that he's alive, but how alive I don't know. We've had big trouble with the phone lines this morning. I've been trying to get New York, Washington, or Baltimore for an hour. They don't know anything in Boston."

"How about a phone patch on the Survey link?" Macauley asked. "We've done a lot of that lately."

The phone rang just then and Taylor picked it up.

He listened for a minute, then nodded to Macauley and said, "All right, thank you, Operator; I believe I'll cancel the call now and try another way." He hung up. "Let's go."

They went back to the control room and Macauley raised the standby radioman in Baltimore.

"Can you get a phone patch through to D.C.?"

"Where to? Our own line is working."

"Good—get the Department of the Interior and work the push-to-talk at your end for us."

"Roger, stand by." They could hear a dial tone, then dialing. A switchboard operator answered.

"Department of the Interior."

Macauley handed the mike to Taylor, saying, "Push to Talk."

"This is James Taylor, director of Chicago Survey Control. I must speak to the Secretary."

"One moment, sir."

A pause.

"This is the Secretary's office, Mr. Taylor. Mr. Homer will speak to you directly."

"Hello, Taylor?"

"Good morning, Mr. Secretary. Has my courier arrived?"

"Is this line secure, Taylor?"

Taylor looked at Macauley, who shook his head.

"No, sir."

"No specifics, then. Your documents arrived and the man is here now. The Secretary of Defense is also here. A helicopter will pick you up at Glenview Navel Air Station at noon your time; I want you on it and anyone else who is privy to the contents of the document. How many are there?"

"I'll check, sir. Three, I believe, including my personal secretary and my chief assistant."

"All right, I'll see you this evening."

"Sir—is any action being contemplated?"

"We'll discuss that this evening. Goodbye."

"Chicago, the Department has disconnected."

Macauley took the mike. "Okay, Baltimore, thanks. Out."

TAYLOR said to Macauley, "Let's go back to my office. Joe, you haven't heard anything."

Joe nodded, his eyes on the screen.

They picked up Betty on the way and closed Taylor's office door behind them. Taylor spoke.

"I hadn't figured on that so soon. Betty, who else saw those letters?"

"Nobody. I sealed them myself and you locked the briefcase."

"All right. I didn't want the security angle to come in so soon, but Homer evidently has a different idea. The Secretary of Defense is in on it now and that probably means the Pentagon. If they're still worried about revealing our condition to a foreign power, that means only one thing to me—they didn't understand what's in the letter. I didn't tell the Secretary about the other letters—every Senator should have one, as well as the White House and the other Cabinet members. Unless the pilot went to Interior first. He couldn't have been hurt too badly in the crash—he was there when we called."

"Do you hope the letters were delivered—or weren't?" Macauley asked wryly.

"Were. If this gets covered up by security it'll be too late to do anything. We'd better get going. There isn't much time."

"Going where?" Betty said.

"Oh. We're under security rules now, by the way, whether we like it or not. We've been called to Washington, Betty—you, too, because you've seen the letter. We have to be at Glenview by noon, which gives us just over two hours. You go home and pack. We'll pick you up in front of your apartment at—better make it ten-thirty. We can't count on traffic."

Macauley said, "Why not take the rapid transit?"

"You weren't watching the news," Taylor said. "The northwest side blacked out again this morning and took the rapid transit down with it. Let's get going."

The trip was slow. Betty was on the street, waiting, when they picked her up twenty minutes late. Eden's expressway was solid, all lanes in both directions, everyone with headlights on and behind closed windows.

"Look at that," Macauley said. "They still drive into town after all these years, even though they have to wear respirators to do it."

"Look at us," Taylor, driving, said wryly. "We have a sealed car with air conditioning and filters, so our engine is carrying half again the normal load, putting out more gunk than anyone."

Betty said, "But we're on important business."

"So are they," Taylor said. "That's the trouble. Everyone has business; everyone needs air to breathe; everyone has to keep food from spoiling; everyone needs to watch TV—it goes on and on. Everybody simply copes with the situation as best he can. When the air gets thicker you go out and buy a more powerful filter unit, which draws more power and calls for more power generation, which

makes the air even worse. The voltage regulator and your voltage goes back up—but the power fails altogether because of the extra load. The public transportation breaks down, so you drive to work and that makes the soup thicker outside. And so it goes. You don't just suffer—you try to do something. But if you work in a mill, a store, or drive a taxi, you don't have the power to correct what's causing the problem—you just cope with the symptoms one at a time, as they come up. The richer you get, the worse you make the situation."

Macauley added: "And every time you buy a new gadget you improve the situation inside your own little bubble—and between the bubbles it keeps getting deadlier."

Betty asked, "Have you heard about the water pumps?"

Macauley said, "No."

"Our apartment just got one. It keeps the water pressure up even when the city lowers it. I thought it was nice, but I suppose that's just like the voltage regulators. Our bubble has one of those, too."

"Water pumps!" Macauley snorted. "So what happens when there's a fire? Those pumps will suck the lines dry. And I'll bet they're all run by electric motors."

Taylor said, "I saw that thing last night on the voltage regulators. I wish they hadn't mentioned them at all. The more people know about them, the more will buy them. They don't care what it does to anyone else. I feel that we're dangerously close to the situation where nobody can afford to be altruistic any more—we're living closer and closer to the edge of a breakdown. I wish I knew just how close we are."

"Oh, it's just *awful*!" Betty said.

"I guess you could call it that."

Taylor's comment shut off the conversation. He concentrated on changing lanes.

THEY reached the gate at Glenview an hour late. Two plainclothesmen were waiting for them there; they got into the car and all proceeded to the control-tower parking area. A helicopter was waiting, its blades revolving lazily. It took off as soon as they were aboard and belted in.

It was a huge long-range Air Force helicopter with jet engines for cruising; they stopped at Wright-Patterson Air Force Base to refuel, had a late snack for lunch and touched down next at a pad next to the Pentagon. An underground passageway, sweltering but filtered, took them to a bank of elevators and their elevator let them out some stories higher at a carpeted lobby, air-conditioned and comfortable.

"Another bubble," Betty whispered to Macauley as the plainclothesmen and Taylor talked to the receptionist. In a moment they were all ushered into a huge, carpeted office, containing soft leathered easy chairs in Air Force blue, arranged before an impressive desk. Behind the desk were the Air Force flag and the American flag on standards and the wall backing them was covered solidly with drapes of a deep rich blue.

The three were left alone. They

studied the rest of the room.

One entire wall was taken up by a spectacular blowup of a squadron of supersonic fighter-bombers peeling off toward wooded hills below. Smoke was visible rising between the trees in a cratered area and small white puffs showed where new craters were being formed. A person sitting behind the desk could visualize himself hanging poised, ready for the long slide down through the air toward the jungle, as if he were a member of the squadron.

Macauley said, looking at the picture, "All I can think of is how clear the air is."

"You can't even tell what country it is," Betty said and swiveled her chair away from the picture.

An aide—a major in incredibly perfect sartorial condition—came in briskly and sat on the edge of the desk, smiling.

"Sorry to keep you waiting. Have a nice trip?"

"Not bad," Taylor said.

"We were held up in traffic," Macauley added.

"General Soames will be with you shortly. He wants to brief you before you go over to the White House. All informal, of course. Would you like anything? Coffee? Drink?"

There were no takers and the aide left them alone again. Macauley discovered that his chair squeaked.

Abruptly the door swung open again and another major came in, carrying a briefcase in one hand and what could only be one of the letters in the other—the letterhead was visible as the aide set it in the center of the desk. The aide nodded amiably to the visitors, sat down in a chair behind and to the left of the desk. He snapped open the attaché case, which converted into a writing table. He arranged pads and pens on it in his lap.

Finally the main contingent appeared. Two more aides, colonels, held the doors open while a perfectly pressed general, obviously Soames, came through, followed by two lesser generals talking easily with each other. Soames was physically fit, white-haired, clean shaven and handsome.

The aides fanned out; one of the trailing generals sat on the corner of the desk while Soames himself pulled up a swivel chair to form a circle with the visitors. The other trailing general went over to the stenographer-aide, who said something that made them both laugh quietly. The two colonels found seats behind the trio.

THE aide sitting at the desk stood. "General, may I introduce Miss Hatch, Mr. Macauley and the Director of Chicago Survey Control, Mr. James Taylor? General Soames." He sat again. He had the names all correct and had ordered the introduction so that the general shook hands last and most lengthily with Taylor and spoke to him first.

"I appreciate your coming, Taylor," he said. "I don't want to hold you up, so let's get to business. Please be seated." They sat and the stenographer-aide in the back-

ground quietly unclipped a pen from his tunic pocket and began to write.

"This is strictly informal," the general said. "I have your letter and it has been thoroughly discussed. We asked you to come because we take it seriously, very seriously indeed."

"General, I don't recall addressing any of the letters to you," Taylor said quietly.

"Is that right? Well, I'm sure you sent a copy to the Secretary of Defense."

"It hasn't yet been delivered."

"I see. It doesn't matter, of course, but John, do you know how we happened to obtain a copy?"

"Your courier brought us an unaddressed copy," the lesser general said to Taylor.

Macauley shot a look at Taylor, but Taylor merely shrugged.

"I see. That accounts for it."

"Yes." The general collected his thoughts. "Uh, with regard to the situation you describe, I take it that there have been no new developments?"

Macauley said, "The top of the cloud layer was one hundred and fifty feet higher on our survey run east this morning. There have been two major power failures in Chicago in the last twelve hours."

The aide sitting on the desk said, "Power has been restored, General. Mr. Macauley wouldn't have known that."

"Yes," Soames said. "So the outage was temporary, as was ours in Washington. But the overall situation remains most serious, as you pointed out, Taylor."

Taylor asked, "What is going to be done? You read my recommendations?"

"Oh, yes, and they are being given full consideration. However, you must realize that the consequences of such drastic measures must be weighed against other considerations that are just as alarming. Perhaps more so. We have a job to do here, too, as I am sure you realize. We have to consider may factors that don't affect you in your work in Chicago."

"I hope you realize, General Soames, that this situation extends from west of the Mississippi to the East Coast," Macauley pointed out.

"Oh, yes, yes," the aide on the desk said. "There was a thorough briefing this morning. The Air Force is much aware of the problem."

"What specifically do you want from us?" Taylor asked.

"All right. Very specifically, Taylor, we feel after very careful consideration—very careful—that the international situation just now would make immediate implementation of your recommendations, as they stand, most undesirable. What you suggest would put us in a dangerously weakened position. That is not to say that certain steps cannot be taken, however. We have the whole country to consider and it may be that by transferring certain industrial facilities to less affected areas we can substantially reduce the hazard. I want you to give this very careful consideration. A massive effort, with the Air Force solidly behind you, to move power generation, oil re-

fining and other industries *away from the cities*. We feel that you are in the ideal position to direct such a redeployment—we have urged such a course for years and you will have our full support. You can see how such a move would go a long way toward solving the impurity problem."

Macauley started to speak, but Taylor interrupted. "I see, General Soames—or I believe I do. Let me rephrase it. You feel that we at Survey Control can pinpoint areas in which the generation of—er—impurities is minimal and remove the offending plants from those areas where the concentration of industries causes serious problems. A sort of decentralizing strategy. It strikes me that this would also have the effect of making such industries much less susceptible to surprise attack."

The general leaned forward and stared hard into Taylor's eyes. "Taylor, you understand us exactly. From the military point of view, shutting down all these industries would create an open invitation to attack, from within as well as from without the country. Spreading them out would have just the opposite effect—and it would go a long way toward solving your problem as well." He sat back. "Gentlemen—and Miss Uh—I think we have accomplished our purpose. It has been a most productive meeting."

The General stood and all stood with him. He shook hands all around and left, the colonels preceding him to hold the door and the lesser generals bringing up the rear, talking easily to each other again. One of them paused as he passed Teylor.

"We're glad you're with us, Taylor," he said, offering his hand.

Taylor shook it, saying, "My pleasure."

The stenographer-aide stood up and said, "If you would please come with me you may wash up. We have dinner for you if you care to eat here.

Macauley said softly to Taylor as they filed out, "If we did what they want there wouldn't be a break from the East Coast to the Rockies inside a year."

"I know—shut up. There won't be in any case."

Betty whispered, "Wasn't he impressive? I was scared to death."

Macauley took her arm and whispered back, "That was the whole point."

IV

A QUESTION OF SURVIVAL

"THIS is the Oval Room," Macauley said to Betty. "President's secretary in there," pointing. The plainclothesmen—a new pair—left without comment.

"Do you have the sensation of people scurrying around behind the walls telling people that we're here?" Macauley asked noboty. "So far I haven't seen anyone call ahead, but somehow they're always ready for—"

The secretary's door opened.

George Farrow came out—they all recognized him.

"Thank you for coming," he

said. "Let's see, you're Betty Hatch, you—Mr. Macauley. And you have to be Taylor."

He grinned as he shook hands—he was black, too. The contrast with the reception at the Pentagon was considerable; they were at ease.

"The President will be right out," Farrow said. "He's on the phone."

"Who will be here?"

"Oh, a lot of people from Interior, Defense, Commerce and so on. Don't worry, I don't think they're going to pick on you. They just want to find out exactly what you think about the situation. It's not a regular cabinet meeting, although you'll be in the cabinet room. Have you had any dinner?"

"They gave us a nice dinner at the Pentagon," Betty said.

Farrow gave her a quick look, said, "Excuse me a moment, please—" and disappeared by his door.

Taylor said flatly, "They didn't know we were taken to the Pentagon first. We may find ourselves in the middle of something."

"Shouldn't I have said it?" Betty asked, worried.

"It's all right, Betty, we have nothing to hide," Taylor said. "If I know anything about President Holland, though, he's not going to be pleased."

"Are you going to tell him about the other letters?" Macauley queried.

"I don't think that will be necessary by now," Taylor said.

The secretary came out again. "Miss Hatch, gentlemen, the President."

President Holland strode out past Farrow and shook hands firmly but quickly. "Hello, Miss Hatch, Mr. Taylor, Mr. Macauley. George has just told me that you stopped at the Pentagon. Did you talk to Carver or Soames?"

"Soames, Mr. President," Taylor said. "He wants to decentralize. I didn't tell him why it won't work."

"Good. Before we go in, how many copies of the letter went out—and roughly to whom?"

"Betty?"

"Uh, let's see—I made about one hundred and twenty copies, one to each Senator, one to each Cabinet member and some extras loose. And one to you, Mr. President."

"Why so many, Taylor? Are you trying to take this to the public?"

"No, Mr. President. But I had to make sure that one person or a handful couldn't—lose it. Or at least I tried to make sure. No offense intended."

"The Senators didn't get theirs. Your courier left a copy here and went next to Interior, where he was held."

"General Soames appeared to have a copy."

"Oh. The loose sheets. How did you happen to choose an FAA official to carry them?"

Taylor and Macauley looked at each other.

"FAA official?" Macauley burst out.

Betty said quietly, "The pilot must have been injured. He sent someone else."

"Must be it," Taylor said. "So he probably read a loose copy and

sent it or took it to the Pentagon before he went anywhere else. No wonder. By the way, I know that the pilot read a copy. I thought he was here."

Farrow quietly left the room and they heard dialing.

The President said, "All right, we know where we are now. Let's join the others in the Cabinet Room. Miss Hatch and Mr. Macauley, you may attend, but please do not comment or amplify unless you're directly questioned."

He led the way.

SILENCE fell and the thirty-odd people around the large table stood as the President entered. The President indicated a chair near him for Taylor and motioned the others to seats farther down the table.

"I see that everyone I asked is here," the President said after looking around the room. "Thank you. This is Mr. Taylor, director of our Chicago Survey Control headquarters—his associates, Miss Hatch and Mr. Macauley."

There were nods and a few handshakes.

"This is not a regular Cabinet meeting as you can see, but an emergency fact-finding session. There will be a Cabinet meeting later, if warranted. We are here because Mr. Taylor has brought to a head the problem that has been on all our minds for many months—or years. I invited Mr. Taylor and his associates at the advice of the Secretary of the Interior, Tom Homer, partly, and mainly to get Mr. Taylor's analysis of the situation directly, and partly—" he smiled slightly—"to keep them from creating any more mischief."

A chuckle ran around the table.

"Mr. Taylor feels strongly enough about the situation to have taken a personal risk in making sure his views became known. Since he is also as knowledgeable as any man in this country about what is happening we have to take his alarm seriously—perhaps even more seriously than we take our own, since we see only the surface.

"As President, I have many pressing concerns, but if Mr. Taylor is interpreting his data correctly, I am inclined to think that this incredible deterioration of our environment is the most pressing of all. Mr. Cooper?"

The Secretary of Defense had a hand up.

"Mr. President, we at the Department of Defense also have serious concerns, as you know. With outsiders present I cannot make my point fully, but our enemies have been following our cloud cover closely and they realize how near to the danger point we are. If we believe that the impurity control situation might get out of hand in our major cities, we must carefully consider the effect that this will have in international calculations. We, ourselves, may have to launch energetic measures simply to provide breathing space in which to tackle the environmental problem. I understand that this problem is very serious, but here we

have a plain question of survival."

The President said, "Tom, you chair the meeting."

Homer stood.

"The question of national defense is moot of course. I would ask my Undersecretary of Impurity Control to comment, but he is not available, so let us hear from Mr. Taylor right away. Mr. Taylor?"

TAYLOR rose slowly. "Thank you, Mr. Homer. I can't comment on national defense, but what Mr. Cooper has said and what I heard this afternoon from General Soames show that my point hasn't been made. It isn't just cloud cover out there—it's poison gas, just as much as if an enemy had sprayed it on us. It isn't *getting* out of control: it *is* out of control. And, Mr. President, we don't have here a case of environmental deterioration—those words are used so often that one gets the feeling that the environment is going to pieces out there while we just stand helplessly by and watch it go on. That isn't how it's happening at all.

"What we see going on around us is the visible evidence of a war. Everyone of us lives in an environment that is made up partly of his neighbors' waste products. A few years ago we had the means to get rid of those wastes so they didn't stay around long enough to be noticeable. Now that situation has changed and it's changed in such a way that we are all coming into direct conflict with each other. We are beginning to see and breathe and taste each others' waste products and we can no longer get rid of them fast enough.

"It's a war because we have reached the point where one man can't do what he needs to do in order to survive without doing something against the survival of other people. We shouldn't look at the environment that exists between people—we should be looking at each individual himself, for it's what *he* is doing, not what the environment is doing, that's causing the problem.

"Don't look outside, look inside. Look at this room we're in—well-lit, cool, full of fresh air, fresh water in the pitchers, all of us clean and healthy. How do we manage to maintain this state? The biologists have known the answer for a long time. They say that life is a process of creating order out of disorder—but that can happen only by making more disorder somewhere else. We cool this room—but we heat up the outside air to do it. And we filter the air—but the cooling and the filtering require electric power—and that power requires generators and the generators spew out smoke and poisonous gases. The cleaner we keep our little—bubbles, as my associate calls them—the dirtier we make it outside and the greater the load we put on the filters and coolers.

"Our problem stems from a basic fact of human existence: people are not passive victims of their environments, but active controllers of them. When a man feels cold in his house he doesn't just huddle under the covers and shiver—he

turns the thermostat higher. If he doesn't have a big enough furnace, he goes out and buys a bigger one or gets one however he can. If he can't breathe the air he works harder until he can buy a filter unit for his house. If the water pressure falls, he raises it with an electric pump; if the voltage goes down, he raises it again with a voltage regulator. And that's the problem. Each person is capable of finding ways to control the little part of the environment that *he* is interested in—but what he does to the rest doesn't enter his calculations. It can't—we're talking about a lot more than comfort now. In six major cities, if you lose your filter unit and don't have a respirator nearby, you die.

"If something doesn't happen to change this situation, then following my recommendations won't accomplish a thing. We'll be right back where we are now, but next time it won't take so long. We have to find some kind of ordering principle that everyone can believe in, so that there is more awareness of the relationship of little self-protecting actions to what's causing the need for them. We have to educate the public to the fact that their self-protecting actions aren't working, even when they seem to work for a while.

"That's a matter beyond my competence—I hope it isn't beyond everyone's competence. Right now we are faced with doing something to put an immediate end to this war of person against person. It doesn't matter what the Russians are planning or what this means to the Chinese or what it does to our credibility with our allies. It doesn't matter, because if we project the figures we have now just two months ahead--to the time when heating of homes and offices will have to start—we can see that this country will be utterly disarmed and helpless. That is why I picked the period of sixty days in my recommendations. In sixty days, no matter how well we cope with the situation now, we will have total collapse of all power systems.

"One last thing. We can't wait. I don't know how close the system is running now to the edge of disaster and probably nobody does. All our major cities are operating with negative power reserves; they require an input of power from the outside twenty-four hours a day because their own plants are inadequate. The plants are inadequate because the air and water are so bad that everyone has to have devices—but I've already been through that. On the West Coast, they're closer to the edge than we are in the East—it may already be too late for the Pacific Seaboard.

"Our predictions are beginning to fail—to fall behind the reality. The cloud cover is complete over the northeast quadrant of the country two months ahead of predictions: it's thickening at a rate which we can't possibly explain. We failed to see that the completion of the cloud cover in the West would change the rainfall pattern and denude the Rockies of vegetation. There will be more such failures—because we have never

seen anything like this happening before. I'm sorry for taking so much of your time and telling you things you probably already know—but for God's sake, gentlemen, Mr. President, there is no time left."

There was silence for a moment, then Homer said, "Thank you, Mr. Taylor. I have tried to say something similar for years. Mr. President?"

"Not yet, Tom."

HOMER eyed several hands, then called on a person who did not have his hand up. "Uh, National Science Foundation, Dr. Klausman?"

Klausman standing was not much taller than his neighbors sitting. He spoke slowly.

"Mr. Chairman. Mr. President. Laties and chentlemen. Ass Mr. Tay-lore has said. Ve do not yet understan-t ze proplem. Is iss—no doubt-t seeerious." He paused and looked around from under heavy eyebrows.

"Putt! Ve can. Not. Attack it. Plindly. Haastil-ly. IG! norantly. It iss uuurgent. Zat ve com mence a seeerious. Inwestigation. Im—*meed*iatly." He sat down.

There was an uncomfortable silence until Homer realized that the doctor was finished.

He said, "Uh, thank you, Doctor. Yes, Mr. President?"

"There certainly will be an immediate investigation. Mr. Taylor has not presented us with many facts tonight, but I am inclined to accept the general tenor of his remarks. The figures in his letter do not exactly speak for themselves and I confess that I had not comprehended their significance until tonight. We are indeed under poison gas attack. Does anyone here see any reason to continue this meeting before I convene the Cabinet?"

Five hands shot into the air.

"I thought not. The immediate question is not that of Mr. Taylor's persuasiveness, but of the facts on which he rests his analysis. If the facts are exactly as he has stated in his letter—and of course I have no reason to doubt that they are—then I must agree that we have here a question of survival that goes beyond national defense." There was a loud objection from the Secretary of Defense. "Later, Bob, at the Cabinet meeting. I move to adjourn this gathering. Dr. Klausman, I want you to name an emergency panel to go over Mr. Taylor's data and analysis."

Klausman beamed. "Immeeediately, Mr. Presitent. Visin ze veek."

"No, Doctor, within the *hour*, please. I want them in Chicago no later than day after tomorrow."

Klausman looked alarmed. He fished a sheaf of tattered papers out of an inside pocket and wandered off without saying goodbye, muttering, "Valter? Eberhardt? Cardvell?"

The President pointed to Taylor, Macauley and Betty and motioned them to follow him out of the room.

"I have to convene the rest of the Cabinet," he told them in the Oval Room. "Don't be alarmed at the brevity of that meeting. I saw that

the right people were properly impressed and that was all I wanted. Mr. Taylor, you have my thanks—and there will be a letter to back that up. Just take it easy with those bloodthirsty recommendations. I'll take care of the Pentagon."

He was gone.

The secretary, Farrow, rescued Taylor and his caborts from the cluster of questioners that immediately surrounded them—somewhat to Macauley's disappointment: he hadn't had a chance to express *his* opinion.

"We've arranged for immediate transportation back to Chicago," Farrow said. "You'll take the Presidential helicopter to Wheelis Air Force Base, then an Army helicopter to Chicago. Your bags will be there."

And it was over.

Over Pennsylvania, under a moonless sky, words returned.

Macauley said, "That's some President. I didn't even vote for him."

Taylor nodded. "You know, I felt like a wide-eyed teenager after it was over."

Betty turned in her seat and put a hand firmly on his arm, "No, Jim. It didn't look like that at all. You said it a lot better than you think you did. I was there."

"But I didn't—well, thanks. I just wonder what they're going to do—and if they'll do it in time."

Later they were awakened by a corporal. "Almost there," he said. "We're setting down at Meigs. There'll be a car."

They looked through the window and after a while a dull red glow appeared in the clouds, lighting them up as if some great furnace had spilled molten slag over a thousand square miles of the land beneath. As they sank toward the glowing layer of pollution Taylor turned his head away.

"Shee-*it*," he said quietly, but with feeling. "What *are* they going to do?"

V

THE SOLUTION

YELLOW-GRAY clouds drifting downward on the screen. A red dot in the center, sometimes breaking up into two. Joe picked up the mike.

"*Sur*vey two, *are* you holding fifty-five hundred?"

"Affirmative."

"*Sur*vey two, *in*crease altitude to six thousand. We are *los*ing your marker. *Re*set calibration."

"Roger."

"*Den*ver Control, this *is* Chicago Control, over."

"Denver Control, over."

"We *have* five, two five zero pressure altitude here on a line extending west from Chicago about three hundred miles." Joe sighed and dropped the singsong. "Are you in it yet?"

"Affirmative. The Long's Peak Station reports continuous cover in all directions east of the mountains. Estimated top, fifty one hundred, mean sea level. Buildings in Denver are still showing through."

"Roger, thanks, out." Joe paused. "New Orleans Control, this is Chicago Control."

"N'y Orleans Control."

"Is your survey plane activated yet?"

"Negative. This afternoon, maybe."

"Airline reports?"

"A couple, but there's not much flying. The top seems to be at about eleven hundred and slopes up north and east. We have a tanker report of heavy pollution two hundred miles south in the Gulf. They're on radar and loran navigation. Oh, the mayor put out an order this morning; respirators to be provided for all who can't afford them, up to four per family. We've had some deaths."

"Roger, I heard that on the news. Thanks. Out."

Joe scribbled on a pad for a while, then braced himself and picked up the mike once more.

"San Francisco Control, this is Chicago Control, over."

". . . isco Control, pardon me, go ahead."

"We understand your planes are grounded again today. Do you confirm?"

"Affirmative, affirmative. Nothing in or out. We're down to one hundred feet visibility everywhere. Is this Joe?"

"Affirm. Who's this?"

"Tubby. This will be my last shift—I'm getting out. I have asthma. There's still no power. We're on emergency here."

"Oh—well, it must be bad."

"That's the word. We have martial law in California as of this—"

The carrier stopped and static rushed in the speaker.

"Frisco, Frisco, Chicago Control, over."

No reply. Joe picked up a telephone.

"Listen, do two things. Get Taylor up here—Control Room. Oh, is *he* still here? Well, get him up quick anyway—this is more important. And then raise San Francisco Control on the land line for me. No, wait, I'll dial it myself. Get Taylor."

He depressed the button, then dialed ten numbers. "San Francisco operator." It was a male voice. "Have you a priority?"

"Uh—yes. This is Chicago Survey Control. I want our station in San Francisco at, uh, nine-seven-seven—three-three-oh-three."

"Stand by." Long pause.

Taylor came through the door followed by Macauley and a stranger. Joe held them off with a palm and flipped on the loudspeaker. The operator returned.

"That exchange is inoperative. Stand by."

There was another wait, then a click and the dial tone returned. Joe swiveled around.

"I had Tubby on the link. Friend of mine in Frisco. He said they have martial law as of—and then they went off the air."

"As of when?" Macauley asked.

"That's when the carrier quit. I don't know. I think someone pulled the plug."

Taylor said, "My God!"

"Some other stuff." Joe referred to his pad. "Denver has it this morning, same pressure altitude as here. It's eleven hundred feet in New Orleans and goes at least two hundred miles into the Gulf."

The stranger said, "That does it. From the Rockies to the East Coast. It only took fifteen days to spread fifteen hundred miles."

"Oh, Joe, this is Dr. Cardwell from Carnegie. He's staying on as a data analyst. This is Joe Foster, Doctor, our chief of survey operations."

"Glad to meet you, Joe. Do you handle the whole operation yourself?"

"Lord, no," Joe said. He waved through the window at the room beyond; about half the crew was there, sitting before their consoles. "They all do the work. I just stick to the hot spots. And we're just aerial survey—downstairs are the guys who work from ground level up."

"Yes, I've seen that," Cardwell said. "What about the martial law rumor, Jim?"

"Let's get on it right from here," Taylor said. "Find some chairs." He picked up the telephone.

"Barbara, get me the Undersecretary—or if he isn't there, get me Mr. Homer. Emergency, you can tell them. Oh, wait—" he fished out his wallet with one hand and flipped it open. "Tell them Mr. Sharp is calling. That's right."

HE HELD the phone and put his wallet away. "You're sworn in, Joe?" Joe nodded. "That was the code for 'drop everything.' He should answer soon."

Joe said, "It's weird. The cover is five thousand to fifty-two hundred feet pressure altitude from Boston to Denver—the only reason Denver isn't buried is that the ground rises nearly to the top there."

"We're getting a handle on what's causing that," Cardwell said. "It's what astronomers call albedo—the percentage of the sun's radiation reflected by a planet. These clouds are strongly reflective in the visible and infrared, so only about one-fifth of the normal solar energy penetrates to the ground. And about sixty percent of the energy is reflected back into space, instead of the normal thirty percent."

"Then why is it so hot?" Macauley asked.

"Stored heat, internal heat from Earth. That normally radiates away, but now it's reflected, too, back down. Actually it's no hotter than it should be this late in August, but upstairs things are different. There's a sharp inversion layer at about five thousand feet without nonhomogeneities to break it up. And no wind to speak of. The jet stream has moved to central Canada and the cloud layer is preventing the usual variations in temperature that can drive winds and break up inversions. So here we sit.".

"Why does it keep getting thicker?" Joe asked. "Say, isn't that call taking a long time?"

Taylor nodded. "What's up, Barbara? Oh? Well, as soon as you get them, ring me back." He cradled the receiver. "Still trying to raise Washington. We may have to go to phone patch again."

"Well, we *think*," Cardwell said, "we *think* it's simply the release of stored heat, the inversion

layer and the normal output of contaminants, if you can dignify contaminants with the word 'normal.' The inversion layer is moving upward and underneath it normal mixing fills the volume as fast as it increases." He shrugged. "Or something. We don't know yet."

Taylor picked up the phone and said, "Barbara, I think I'll take this in my office. Oh—all right." He sat down with the phone propped between shoulder and ear. "She got through and they're trying to raise Homer at the White House now."

There was a brief wait and then: "Hello, yes, this is Mr. Sharp—hello, Mr. Secretary. Taylor. Have you had any recent reports from California? Yes, we have. The survey station has suspended transmissions as of—uh—fifteen minutes ago. No, sir. Suddenly." He turned to Joe. "Any sign of interference, trouble, before that?"

"Negative."

"Normal, sir. The phrase was used, 'pulled the plug.' Talking at the time, yes, sir. Have you heard any rumors—uh, I used the phrase advisedly, Mr. Secretary. Perhaps—no, I won't, sir. Perhaps you should contact San Francisco Control by telephone, sir. By telephone, yes. Specifically. All right, I'll be here. Good. . ."

". . . bye," he said, hanging up. "I didn't think I was getting through to him and he wasn't saying how much they already know."

"Maybe we ought to find a TV," Macauley said. "They couldn't keep it a secret from the networks."

"Hah!" Taylor picked up the telephone again. "Barbara, get me CBS. Over on McClurg Court. Just the switchboard—I don't know anyone there."

"Jim, is that a good idea?" Cardwell said. Taylor looked at him.

"Act first, think later," he said. "I'm getting tired. Barbara, forget it. Yeah, I changed my mind." He put down the phone.

"It's hard to sit by and hope they're doing the right thing somewhere else," Cardwell said sympathetically. Taylor nodded. Then he straightened up.

"Well, we can't just sit here paralyzed," he said. "We have work to do."

HE STOOD up and all the lights went out. The control panel flickered, but held; a few incandescent blubs came to life in the ceiling.

"We're on standby power," Macauley said. He reached over and picked up the telephone. "Barbara? Good, it's still working. Barbara, we have a power failure, will you see that all personnel are alerted and announce that everyone is to have respirators at standby? Do you have any light? Good. Don't let anyone call home yet—we have to keep this line open for a call from Washington. Announce yellow alert, too. Right." He hung up.

Joe flipped an intercom switch and said, "Power failure, men. Get your respirators out and keep them handy. We're still opera-

tional." There were some waves from the men at the consoles.

The phone rang and Taylor picked it up. "Taylor here." He listened for awhile, then said, "Okay, we'll just have to wait." He put the phone down again. "She tried to set up a line with the Washington operator and there's no answer. She's trying to get a different routing on the line."

The radio came to life. "Chicago Control, this is Baltimore, over."

Joe answered. "Chicago."

"Chicago, I have a phone patch for you from Washington. The land lines are out."

"Roger, Baltimore, go ahead." There was a click, then a new voice.

"Hello, this is the White House operator, Mr. Sharp, please?"

Joe handed the microphone to Taylor, turned off the phone speaker, plugged in earphones, which he handed to Taylor.

Taylor said, "Yes, this is Mr. Sharp. All right. Hello? Oh—yes, sir. Yes sir, we're operational, but we've had a power—all right, sir. One moment." Taylor turned to Joe, a strange look on his face. "Joe, could you raise Kirtland Air Force Base in Albuquerque?"

Joe thought. "We'd have to be awfully lucky," he said. "Can you get us a frequency near the one we're using?"

Taylor said into the phone, "Sir, we need to know a calling frequency near our normal frequency. Sir, there are others here. Yes, all sworn in. All right." He waited, pulled over a pad and picked up a pen. He wrote. "All right, I have it. Thanks—goodbye. Taylor again, sir, we're working on it. Will you hold?" He turned to Joe. "What about it, Joe?"

"I'll have to ask the chief engineer. Be right back." Joe took the pad, left the room and reappeared on the other side of the window. He strode to a far desk and spoke to a man sitting there. In a moment the left by another door and Joe came back.

"Andy says he can do it," Joe said. "He'll have to retune the transmitter, receiver and antenna, but it won't take long; this station has already been changed to different frequencies a couple of times."

In a moment the monitor screens went to snow. Taylor said, "Wait, Joe, how can we keep the link with Baltimore?"

Joe grinned. "We can. Stop worrying, boss. I can do the relaying right from here."

The man beyond the window came back and waved. Joe picked up an operator's microphone, plugged it in, adjusted it around his neck and put on earphones. "See, I listen with the phones and work the switch to connect Washington to Kirtland. If we can raise them."

He toggled a switch. "Kirtland Air Force Base, this is Chicago Survey Control, do you read, over?"

A reply came faintly through noise. "Kirtland, over."

"Kirtland, I have emergency traffic. We are a fixed frequency station, can you retune? This is an emergency."

"Stand by, Chicago."

After a pause, Kirtland came in loud and clear.

"Chicago, state the nature of

the emergency."

Joe said, "The President of the United States wants to talk to—" Taylor was waving. "Commanding officer," he said. Joe nodded. "To the commanding officer of the base."

Another voice came on. "This is the O.D. We have no notification of such a call." Joe silently handed the mike to Taylor.

"This is James Taylor, director of Chicago Survey Control. I have the President on the line and he has requested a phone patch to your commanding officer. Wait—" he listened to his earphones. "The President wants to speak to 'Wet-pants' Blake."

"Stand by." There was a wait, and the first voice came back.

TAYLOR handed the microphone back to Joe, who held the talk button in and counted seconds to himself. When he let it up the voice came in clearly.

"You're in luck, Chicago, we have a good skip. The patch is in." Joe pointed to Taylor.

"Mr. President, the patch is ready and I presume the commanding officer will be on shortly. Thank you. Do you want to wait or be connected now? All right. This is not a secure line, Mr. President. Oh, I see. All right." He handed the microphone to Joe, who unplugged it and threw some switches.

The loudspeaker said, "Chicago, General Blake will be on the line in a moment."

Joe flipped a switch, waited and flipped it back.

"Ohmygawd. I mean, yes, sir, Mr. President."

(——)

"Spiegel, sir. I'm glad to meet you, too, sir. Uh, here's General Blake."

Blake's voice said, "Hello, Fred. That was a hell of a password."

(——)

"Sure, we're in contact with them, three ways. No operations, though—they've been socked in for a week."

(——)

"We could refuel a copter at Reno and base the search there. I can tell you now there's nothing to see—it's solid to seven thousand feet west of the Rockies."

(——)

"I see, I suppose Edwards would be the place. I can't believe it, though. There has to be an explanation. Didn't they get anything from Portland or Seattle?"

(——)

"That's *crazy*, Fred. You can't lose contact with a whole *state*. Listen, Fred, I'll go ahead and order the helos out, but I'm going to get on our secure lines to Edwards and see what they have to say. Why didn't you call me that way?"

(——)

"Well, what the hell can Soames do? You're still Commander-in-Chief, aren't you?"

(——)

When Blake came back he sounded deadly serious. "There's only one thing *to* do. Divert the power and shut down the secure lines. If Soames could hear me he'd shit, but that's what I'd do. We never figured that the emergency power would be needed for pre-

serving life, but here we are."

(——)

"Well, we *can't* live with it, but we can't live without it either. If it's as bad as you say the country is wide open anyhow. We can't keep that a secret for another hour. I'll try to raise Edwards now, but the chances are that they've discovered the same thing. I hope they kept at least one line up. I'll get back to you this way as soon as I know anything. Fred—well, out."

Joe spoke quickly into the microphone. "Mr. President, this is Chicago: I had to listen, sir, to do the switching. Can I tell Mr. Taylor? . . . Yes, sir. Only that. We'll stand by on Kirtland's frequency, yes, sir—but sir, we may not be able to hold it. We had a lucky skip. I don't know, sir—one hour, two hours. You can't tell. No, sir, only one frequency at a time. Yes, sir, I would recommend that. Thank you." He switched and said, "Baltimore, we are finished for the time being. Stand by on this frequency from now on, over."

"Roger, Chicago, out."

JOE turned around. "California is in trouble. I guess you got that. I'm not supposed to get more specific. But there's something you have to know: power's down everywhere from here to Washington. The President has ordered all emergency generators, civilian and military, to be diverted to running emergency filter units. Our orders are to stay on the air and stay operational."

"I can guess the rest," Cardwell said. "It's pretty clear that the Pentagon is fighting to keep security going and the President is shutting down their communications to keep them from going off half-cocked. Although I suppose they can contribute a substantial amount of standby power."

Macauley said, "I think we may have a problem, too." He sniffed significantly.

Taylor said, "We may be here a long time, so we had better try to keep this floor, or part of it, clean. Joe, get your men together and see how long we could operate one filter unit for this floor—and the cafeteria freezer—just on the emergency power unit. *And* stay operational, of course." A thought struck him. "My God, there are ten thousand people in this building. Let's get our office people into respirators and send them downstairs. There won't be any elevators. Make sure everyone below knows what to expect, and try to get them to go home."

The telephone rang. Taylor said, "Cardwell, will you take over the evacuation? This is bound to be more trouble." Cardwell nodded and left.

The telephone said, "Chicago Survey Control?"

"Yes."

"This is Denver Survey. You must have the last working line in the country. I have a phone patch for you from your Survey Two; he can't raise you."

"Go ahead, we can't receive him."

There was some clicking and a new voice came on. "Survey, this is Survey Two, over."

"Survey Two, this is Taylor. Is this Bates or Peterson?"

"Bates. I have an emergency report—I wish I could show it to you. Survey Four has been trying to raise you, too, probably about the same thing."

"Go ahead, I'm recording." Taylor waved at Joe, who reached over and started the telephone recorder. The loudspeaker went *bleep*.

"Roger. I'm at nine thousand five hundred feet over the Mississippi River, I reckon, about sixty miles south of Moline. I don't know exactly—the Rockford omni has quit. As near as I can tell the cloud top is averaging about six thousand feet, repeat, six thousand feet. And the damndest thing is *happening* to it!" The voice sounded shaken, but steadied as it went on. "I can see a vague sort of line running north and south; east of the line the color of the clouds is a dark orange and west it's the same color as before, sort of dirty yellow. It isn't really a sharp line; I'm over it now; but there's a gradual change—the orange bulges out ahead in places and then fills in between the bulges, while more bulges are starting. It's sort of creeping along, not very fast. Say, ten knots. What the hell *is* it?"

TAYLOR closed his eyes and sat down. "Survey Two, we must get pictures. Give us about five minutes to reset our receivers. Start transmitting now, with range marker in the infrared."

"Roger. By the way, I can see a big bulge sticking up over the horizon where Chicago is."

"Okay, Two. And empty your sample bottles, we'll have to have some of that. Out."

He saw Joe through the control room window and knocked on it. Joe went to an intercom and asked, "What is it?" Taylor looked at the console and gave up. He beckoned Joe to come.

"Joe, we've got to get the telemetry going again; something is happening up there. Get on it, quick." Joe left immediately. In a few minutes the snow left the screens and a moment later Joe's voice came over the intercom. "You're go." Taylor picked up the mike.

"Survey Two, Survey."

"Survey Two, that was quick. Got the picture?"

"Affirmative and recording. Give us a continuous run along the demarcation and a slant right down into it. Then take a sample east of the line, one in it and one west of it. Then find a place to put down—anywhere. We'll get you back to base. We have to have those samples."

"Roger, I'll let you know when I find a field. Out."

"Two, wait. Use respirators and oxygen on that sample run—got that?"

"Affirmative. Out."

The orange on the screen blended into the dirty yellow, as the pilot had described it. As the plane came closer to the clouds the line became more and more indistinct until only a smooth color could be seen, an occasional whisp of orange in it. Then the picture became murky and gradually turned deep orange.

"Sample one, east," the pilot said. "Turning west. This stuff *itches*. Sample two. Just stings a little, but I'm glad we're on oxygen. Sample three, west and climbing."

"Go west and find a spot to land," Taylor said. "Can you advise where that will be?"

"Affirmative, Grand Island is above minimums and I can make it with twenty minutes' reserve. See you later."

"Thanks, Bates. You be sure to get down safely. We need those samples as much as we need you."

"Moochos gracias," the answer came back. "Out."

Joe came in and looked at the screen. The pilot was climbing again and the orange-to-yellow transition was clear. "What's *that*?"

"We'll play it back later, Joe. Give us about five minutes more of this and then get back on Kirtland's frequency." Joe left again.

Cardwell came in the door about half an hour later. "Jim, something weird is happening outside—you have to see this."

"I think I can guess," Taylor said. "Wait a minute and let me rewind these tapes. We've had a report from Survey Two forty-five minutes ago about a new phenomenon on top. I'm glad you're here. I have a notion of what we're looking at, but I'd rather hear your opinion first. There we are, now watch."

THE same picture appeared and ran through its sequence, with both ends of the conversation replaying too. Cardwell sat silently until the plane made its run down toward the clouds.

"That's enough," he said. "I'm glad you thought of the samples."

Taylor said, "Recognize the color?"

"Yeah. Safety fuel. I've seen a thousand contrails that color."

"So have I. Oh, you didn't get the earlier part on audio tape: the cover's up to about six thousand and the line is creeping west. Does that tell you anything?"

"Maybe. The higher it goes, the more ultraviolet there is from the sun. Maybe some reaction between the safety fuel combustion products and the stuff in the air, catalyzed slowly by UV light. If that's it, the line will be creeping west all the way to the Rockies."

"What did you want me to see?" Taylor asked.

"Oh—it's all orange outside. That tells us something—the material absorbs in the blue and far red. If it were selective reflectivity, we'd probably see blue light coming through. Apparently the color change started several hours ago, maybe even last night, but nobody noticed it. It may not be important."

"Survey Four had instrument troubles this morning and didn't get going until after we went off the air. No way to tell, then, unless an airline has something aloft."

"Not likely. I hope not, anyway—this power failure is a dilly, and there isn't an open airport anywhere east of us. I got a snatch of news when we were herding people downstairs."

"How are they taking it?"

"Worried about the people at

home, most of them. They were glad to go. The building superintendent has his people out directing traffic, too; we met them two floors down."

"All right, then that's off my mind for now. How is it out on the streets?"

"Can't say. One of the girls from an office below called home before the phones quit—where's Downer's Grove?"

"Southwest, I guess, about twenty miles."

"No power there. Don't small towns generally have their own power stations around here?"

"Some do, some don't. I doubt that they could keep power up without input from the city, though," Taylor said. "And without power from the grid there's going to be one hell of a time trying to restart. If the failure was caused by a severe undervoltage, then it was probably something like a million burned out refrigerator motors that triggered it to failure. How are they going to restart with all those loads still across the line?"

Cardwell said, "This could be very bad. How long ago did the lights go out?"

"A little less than two hours. Hour and a half. It's too early to get panicky, but we'd better start warming up for it."

"We have to find a radio, at least—there has to be *some* information. This is enough to drive you crazy. Chicago might as well be a hundred miles away, for all we know about what's happening down on the street."

Macauley came in. "We're in good shape on the power. This place was designed to run by itself for a long time. We can hold the filter units on this floor and the walk-in freezer in the cafeteria downstairs. There's a stairwell for access and the boys are sealing it off so we can maintain clear air right down to the freezer. Notice that the air's better now?"

The radio spoke. "Chicago, this is Kirtland."

Macauley went to the panel. "Kirtland, go ahead."

"We have a call for the President."

"Roger, Kirtland, stand by."

TAYLOR said, "Call Joe," then spotted him through the window and knocked. Joe finished a last word with several men and came.

"Kirtland, Joe. No sense burdening too many people with secrets. Kirtland is standing by."

"Right," Joe said. "Baltimore, this is Chicago Survey Control, over."

"Chicago, Baltimore, go ahead."

"White House line for the President."

"Roger, we're holding the connection. Stand by."

Joe flipped switches, put on earphones and waited. In a moment he said, "Kirtland, the President is ready."

"Fred, are you on?" came Blake's voice; Joe went back to his switching.

(———)

"I have some very bad news."

(———)

"No, we aren't in contact with Edwards. The helos will be there

in another hour. Edwards must have diverted power, too, they'd have responsibility for Pasadena at least. This is something else. The Navajo."

(——)

"That's right. On the way to Reno. Apparently they had no respirators. Nobody thought of them and they didn't ask for help. I can't imagine why. The helo pilot made a low run and saw people, sheep, dogs, birds—" his voice faded and Joe switched, paused, switched back.

(-----)

"Absolutely none he could see. Nobody. He set down in Tuba City but the houses there didn't even have filter units. No sense in staying—he's probably setting down in Reno by now. Its almost as if they had decided— I'll send more helos, of course. We don't know the extent of it. But I thought you should know right away."

(——)

"Yes, I'll report later. Goodbye, Fred."

Joe turned around and tried to say something, but only succeeded in clearing his throat.

"Never mind, Joe," Macauley said. "We got it."

Joe turned back. "Kirtland, the President has disconnected. Out."

"Roger, Chicago. Hell of a thing. Out."

"Let's find that radio," Cardwell said.

They did better after some searching and a lot of haywiring. A television set was brought up from a lower floor by an electrician in a respirator and was patched into the intercom system so everyone could hear if not see. The Emergency Broadcast Network was on the air.

AN ANNOUNCER sat at a table, a single camera on him dead front, papers stacked left and right of him, the microphone boom low in the picture.

"The above food distribution centers will also begin receiving supplies of replacement face mask filters of several types, as well as a few respirators. To replenish a filter when no replacements are available, do the following—get pencil and paper and write these ingredients down.

"One half pound table salt. One half pound baking soda or bicarbonate of soda. Aluminum foil. Line a bowl with the foil and dissolve the soda and salt—hot water, if possible. Pour the solution into the bowl and place used filters into the liquid. Stir very gently for ninety minutes in cold water or twenty minutes in very hot water. Be very careful not to crack the filters—they are brittle and when cracked are useless. Caution—the used solution is poisonous, so dispose of it carefully. Do *not* pour it down a drain—the water supply could be endangered. Pour it onto dirt or grass where it will soak into the ground. Remember, the solution is very poisonous after several filters have been processed. Discard and make a fresh solution after fifteen filters have been processed."

"The local situation as of three thirty P.M., Central Daylight Time: the mayor has ordered all

citizens off the streets. The National Guard has been mobilized and units are expected in downtown Chicago shortly. Do not use the telephones; lines that are still operating are needed for emergency communications. Unauthorized callers are subject to arrest. Private automobile travel is also forbidden until further notice; violators will be arrested. It is expected that the governor will declare martial law as soon as communications with Springfield are restored.

"Crews are working to restore power to several sections of the city with the lowest electrical loads; the first power is expected by five-thirty this afternoon. As soon as the Midwest power grid is restarted other sections of the city will automatically experience a return of power. Citizens are urged to turn off all appliances such as refrigerators, lights, ovens, sump pumps, television sets, radios, battery chargers, household filter units and so on."

Joe, listening in the control room, laughed sharply. "Radios and television sets? Who does he think he'll be talking to then? And who is he talking to now, besides us?"

"All citizens are requested to remain indoors or to report to emergency filter shelters. We will now begin reading the list of shelter locations again from the beginning. Keep listening. New locations are continually being added."

Taylor said, "We don't need that right now. I think they may be optimistic about when the power will return. Right now we had better act as if we'll be here a long time." Joe turned down the sound on the intercom.

Cardwell said, "All right, suppose we plan on spending the night at least. We might as well start getting bedding up from the floors below—I don't suppose we'd be blamed for borrowing some cushions from waiting rooms and so forth."

"All right," Taylor said. "If you'll take charge of that, I'll go see what the situation is with the people who are still here. Keep a list of everything you borrow and where it came from."

"Way ahead of you," Cardwell said and left.

AT SEVEN o'clock there was a dinner of sorts, picked together out of refrigerators that still had unspoiled food in them. The main freezer was left untouched.

In the background, the network announcer could be heard finishing another list of emergency shelters. Then he started a new list.

"The following shelters are no longer operative. Fifty-seventh and Vincennes. Eight-seven-five-oh South Western Avenue. Fifty-first and Hyde Park Boulevard. All between twenty-second street and forty-seventh street on Martin Luther King Drive. Malcolm X College. Cabrini Homes. Twenty-two hundred West Madison. . ."

Silence gradually fell in the room as the list went on. It was long.

Macauley looked at Taylor, who was sitting with a stony face looking at a half-eaten sandwich on a napkin before him.

"Jim—we knew the poor people would be hit hard and first."

Taylor, controlling himself, said, "It sounds as though they're closing certain ones down before others."

"But we don't know why."

Taylor picked up his sandwich. "No. We don't." He ate, concentrating on the food.

The announcer was saying, "It is now expected that power will be restored in the downtown area some time after midnight tonight. Other sections of the city will experience a restoration of power when the Midwest grid returns to operation."

Cardwell said, "Every hour they move it two hours back. As far as I can tell there's still no power anywhere in the city. Or anywhere else, for that matter."

Joe appeared at the office door. "Mr. Taylor?"

Taylor rose and went with him. "Come along, you two. It may be word about Survey Four."

They went to the control room; the White House was on the line. Taylor talked briefly to someone and then Joe put through the link to Kirtland. The signal was weak but readable.

Taylor said, "Mac, the President's secretary asked if we had been contacted by any local authorities. I said no. He advised us to stay under wraps here. It seems that there were some riots in Chicago that didn't get talked about over the Emergency Net. The police didn't come out of it too well. Neither did the rioters. Someone started grabbing masks and the police started shooting. The National Guard has had massive desertions—those guys live around here or downstate and they went after their families."

Macauley said, "Could they have shut down the shelters in retaliation?"

Taylor said, "Mac, I'm not going to think about that. Neither are you. If I think about it I'll find a gun and go out after somebody—and it may not be anywhere near the truth. We're in here for the duration."

Kirtland finally came on the line and Blake spoke. He sounded exhausted.

"Fred, we got the helos through. Edwards is out of commission. They're holed up in a couple of hangars with a mob of civilians and all the power on the base is being used to run filters and refrigerators. They'll be out of food in three days. We're going to airlift in what we have—but there's a whole city *here* that has to survive. We don't have full cloud cover yet, but filter units are necessary. We've lost all power input from the Denver grid. Is it possible to reactivate any of the secure lines? We must communicate with other military bases."

(——)

"I can't decide that, Mr. President. That's you, Fred. You wouldn't advise us to ignore the outside world, would you?"

(——)

"I've set that up already. Every flyable plane at Edwards will be out of there tonight with as many people as possible—but that's only something like a thousand or twelve hundred. We'll never get

transports back in there. No radar. No ILS. No nothing. We could hardly find the base. But you didn't answer my question. Are you telling me that we should go it alone here?"

(——)

"I see. White Sands, too, I suppose, and Alamogordo. I don't know why you think this kind of military concentration is the hope of the future, but I see your point. *If* you're right. If you're right we'll try to be around to pick up the pieces. No word from abroad?"

(——)

"So *everyone's* waiting to pick up the pieces. Well, Fred, it's a God damned shitty world. Out." His voice had turned bitter and angry.

THE frequency was cleared. Taylor sat back and said, "I guess that goes for everyone. We'll try to be around to pick up the pieces. Who's that?"

A voice in the hall outside called, "Hello, is anybody here?"

A knock came on the door. Macauley opened it and Betty stood there beside a large suitcase.

"Betty, what are you doing here?" he said.

"Hey, it's everybody," Betty said weakly. "We ran out of filters—that's what we're doing here. We brought all the cans we could carry. There are so many dead people—" she broke down and was eased into a chair, where she sobbed while Macauley held her.

"Oh, Mac, do you remember Peggy Orth from the typing pool?"

"Sure, Betty—why don't you just take it easy."

"I looked back and saw someone grab her mask and run with it. She tried to ho—hold her breath as lo—long as she c-c-could—"

Macauley and Taylor looked at each other over her head. After a while Betty sat up and wiped at her eyes. "Oh," she said, "I'm so glad to see you guys. And you have air and light. It's just pitch black everywhere outside. We had to practically feel our way here."

"Betty, 'we' who?" Taylor asked.

"There were four of us rooming together. We all came back when we couldn't find any filters. We were really scared until we remembered that there was emergency power here."

Macauley hefted the bag. "Did you climb forty flights of stairs with *this*?" he asked.

Betty nodded and started to cry again.

"Darn it, I can't stop. Don't say anything nice to me f-for a while." She took a deep breath. "Is there any water?"

Joe said, "Come along, Betty, I'll show you. We're getting it from the fire-fighting reservoir. Where are the other girls?"

"They went into the office."

Macauley said, "I'll come along—we have to get some more bedding up here for them."

They left.

Later the office furniture that had served as a cafeteria was pushed aside and bedding was brought in; a miscellaneous collec-

tion of sofa cushions, cushions from chairs, odd-shaped pillows and a pile of brand-new blankets. Betty had pulled four "beds" into her own office, next to Taylor's, and was making them up. The other girls were sitting on cushions, talking to some of the men. Taylor went into his office and came back holding two bottles.

"A-hem," he said. "Do I have your undivided attention?" He did. Someone went to the water cooler and started pulling out paper cups and handing them around. Taylor went around the room, pouring carefully; Betty held his for him and he put the bottle down on a desk. He took his cup and looked around.

"Watch out, this stuff is hundred proof. Ladies and gentlemen, let's drink to our poor country."

A couple of the men stood up and silence fell.

Taylor stared into his cup. "I'm not going to make a speech, but perhaps I'd better sum up where we are. There are sixteen of us. We are apparently the only link operating tonight between the White House and the last relatively unaffected area in the Southwest. Now don't get the idea that we're the last ones on Earth—we aren't and we won't be. But if you wonder why we're holing up here while the city tears itself to pieces around us, remember this. If everyone in all of the larger cities dies tonight or in the days to follow, there will be only about thirty million people left in this country. There won't be any industry or public utilities or operating food storage facilities. It's our job to provide a communication link so that when this is over—and it will be over—there will still be some kind of government and the people in it will know what is going on and be ready to act. There's a lot that can be done—the nuclear power plants are intact, the basic stuff we need to start our civilization up again is intact. Nobody knows just yet how bad it's going to be, but you have to be ready to face a country in which seven, eight or nine people out of ten will be lying dead in the streets when we come out. It could be that bad—and we have to be ready."

Someone in the back of the room spoke up; "Mr. Taylor, Chicago is burning. Shall I turn it up?"

Taylor grimaced. "No. Not for me. I know which part is burning."

He picked up the bottle and started around the room again.

Macauley said, "I agree. If we listen to that twenty-four hours a day we'll all go crazy."

The man in the back of the room said, "Hey—" he turned the volume on the intercom up and a rushing sound could be heard. "They went off the air!"

"That settles that," Cardwell said and tossed down his drink. He went to sit next to Taylor who was on a cushion with his back to the wall. "Jim, you don't know which part is burning. I suspect that all of it is burning."

"I'm a little drunk," Taylor said, "and you shouldn't expect me to make sense. I've been making sense all day and enough is enough."

"It's three A.M. Drink your sleeping pill."

Taylor nodded and tossed down the rest of his drink.

Macauley joined them. "Jim, something just occurred to me. All those recommendations you made . . . there wasn't time to carry them out even if they'd gone along with you a hundred percent in Washington, but do you think they would have been enough?"

"Probably not." Taylor sighed and looked around the room. "But that's all history now. All we can do is wait it out—our problem is starting to solve itself."

"Yeah," Cardwell said. "The hard way."

VI

OCTOBER

EACH window of the basement was covered with a piece of plastic film carefully fitted into place and taped around the edges. Orange light came in through two of them, illuminating a large pile of cans in one corner and spreading ruddy color over everything. Along one wall were four mattresses, a double and three singles. The toddler lay asleep on one of the singles, her face dirty around the edges of her respirator.

Tim and Mike were playing checkers on a board made with chalk on the basement floor, using pennies and nickels. Tim was winning.

Judy sat on a backless chair, leaning against the basement wall, reading a comic book. Beside her on the floor lay a pile of tattered comics. She leaned forward and wiped the goggles of her mask on her skirt.

Grace, sewing at a small table, turned on the battery radio and slowly tuned across the band. There was only crackling and hissing. She turned it off.

Tim said, "To hell with them. We're making out all right."

"Don't talk like that," Grace said. "Who's winning?"

"I am," Tim said, bored.

"He always wins," Mike complained cheerfully. "Your move."

Tim made his move. "I think I'll work on the filter."

"Tim, do you think it will work?" Judy asked, looking up. "Could we take off the resps?"

"The game isn't over," Mike said. "Can I come and watch?"

"Come on," Tim said. He got up and walked to a small room full of tools. In the window was a large filter element across which was printed, "Filteraire." Tim reached up and unhooked the filter, revealing a blower fan fitted into a plywood board filling the window space.

"It fits pretty good," Tim said. "Now I have to figure out how to make the blower go." He called back, "Mom, I'm going upstairs for a minute. Where's the clothesline?"

Grace said, "Don't let anybody see you. Under the sink, I think."

Tim went to the top of the basement stairs and unbolted the door. Pieces of garden hose, slit, had been nailed all around it to form a gasket. The room beyond was

orange-lit and bright; three walls were intact, but there were blackened timbers above and on the side toward the TV room. Through the door to the TV room could be seen the house next door, gutted. Tim peered out through the front door, which was ajar, eased it shut and then went into the kitchen. The kitchen had burned partially. Tim returned with a coil of clothesline and went back into the basement, first restoring the front door to its original position. Mike tagged along after him back to the workroom.

"Mother, when is Daddy coming back?" Judy asked.

"Oh, he should be back soon," Grace replied, not looking up.

"Could I have a drink?"

"No, honey, wait and see what Daddy brings back."

"All right." Judy focused on the comic book again.

From the other room Tim said, "We'll have to file a couple of notches in the window frame." The sound of a wood rasp followed shortly.

The toddler awoke and cried feebly. Grace rose quickly and went to her, kneeling and putting a hand on her forehead, above the mask.

"I hope he finds some aspirin today," she said. "Mommy's here, baby. Oh, you're so sore!" She pulled the edge of the mask away from an inflamed line along the child's cheek.

Grace went to a low shelf, took a glass. She kneeled at the water heater, putting the glass down under the drain spigot. She held a rag over the spout and let some water through into the glass. Then she went back to the bed and helped the toddler sit up.

"Remember, honey—real quick and hold your breath." The little head nodded. Grace slipped the lower elastic up behind the child's head, raised the mouthpiece and held the glass there. The child took a few quick swallows, then the mask was pressed back while she panted and coughed. "Once more, honey."

Judy watched for a moment and licked her lips. Then she turned silently back to the comic book. Grace lowered the toddler back onto the bed.

"'nother pillow, honey?" The snout of the small mask waved sideways, *no*.

Grace kneeled there until the child slept again. When she rose Tim was watching.

"Is she any better?"

"I think so," Grace said. She wiped tears from her eyes with the heels of her hands and went back to the table.

TIM looked down at the sleeping form for a moment longer, turned and went purposefully back to the workroom.

"All right, Mike," his voice said, "you hold this end while I feed the rest through."

Mike said, "Look, the fan's going by itself!"

Tim said, "I wish it would. That's just the wind. Hurry up, we have to get the filter back in."

Grace picked up her sewing, but her eyes were on the toddler. She began to weep again silently; then she clasped her hands around the

cloth and lowered her head, her lips moving.

She was dozing in her chair when Tim shook her shoulder.

"Mom, come look." She looked around, dazed. "Mom, it seems to work. I tried it without my mask. Come on."

She rose and went with him. Two lines of clothesline came out of the window frame, passed over two pulleys and were wrapped several times around a hose reel mounted on a wooden stand. Tim pulled a chair into place, put his feet on the handles and began to pedal. A breeze came to life at the filter in the window, ruffling Grace's hair.

"At least we can keep this room clear—maybe the whole basement," Tim said. "Take off your mask." He undid his and put it down; Grace gasped and held out her hand. Tim's face was joyous and he breathed in deeply. "It's all right."

Grace's hands trembled as she undid her mask. It came off. The air was fresh.

"Timmy!" she said. "What a wonderful thing for the baby—we can move her in here!" Tears sprang into Tim's eyes; he bent his head and kept pedaling.

They moved the little one in and then back again when an hour's pedaling by Tim, Mike and Judy proved to clear the whole basement. They wouldn't give Grace a turn.

"Let us do it," Tim said. "You have to do other things. Anyhow, I want to see how long we can stop before we smell anything."

They stopped pedaling and Tim tucked a blanket over the filter. For an hour they waited, then two. Finally Judy coughed.

"I can smell it," she said. "We'd better start again."

Tim went in and removed the blanket and turned to see Mike ready to pedal.

"Let me go first," Tim said. "I'm strongest."

"No," Mike said, pedaling. "It was your turn last."

"Okay, Tarzan, let me know when you're tired. Do it slower—if it will last for two hours we don't need that much air coming in."

The basement door knob rattled.

"Daddy!" Judy cried and ran to the steps. Tim went past her, putting on his respirator. He motioned her back, climbed the steps and unbolted the door. Pete stood there with two supermarket bags in his arms.

"Hi, Tim. Take these. I've got two more in the little wagon outside."

Tim took the bags and went down, depositing them on the table. He removed his mask. In a moment they heard the door open and then close again, quickly. With a rattling of stiff paper, Pete came down the steps. He took one look at Tim and dropped his bags on a bed, starting forward. Then he saw Grace without her mask, then Judy and finally Mike, pedaling in the workroom. Everyone was grinning.

SLOWLY he undid his mask and took it off, ready to clap it back on instantly. He sniffed

the air. His face began to break up. He went to Tim, half laughing and half crying, and clasped him tightly in his arms.

"Oh, boy," he said. "Oh, boy, what a kid."

Tim said, muffled, "It wasn't in time, Dad. But it works."

Pete held Tim by the shoulders at arm's length. "Listen, Tim, maybe you don't know what this means to me. It means I don't have to take filters from dead people any more. For that I thank you."

"Daddy, did you get pop?" Judy asked.

Pete went to the bags. "Yep. And aspirin. And some of the driest bread you've ever seen. And extra filters." His face sobered. "Lots of other stuff—there aren't many people picking over the ruins any more."

Grace said, "Pete, give me the aspirin." She took it, ran some water and gently woke the toddler, who was sleeping on her back, easily.

"Here, honey, here's a pill and some water to make you feel better."

The child nodded, then closed her eyes, took a deep breath and held it.

Grace laughed. "Honey, you don't have to do that today. Just take it," she said.

In the workroom Tim said, "My turn, Mike."

Judy sprang up. "No, mine, mine—" And Tim came back with Mike, caught Pete's eye, smiled and shrugged.

"Kids have too much energy," Tim said.

THAT night Pete and Grace lay together on the double mattress, respirators on, whispering. Around them the children slept quietly.

"Did those filters come from dead people, Pete?"

"Yes. I buried the people, too. Other men are doing the same thing. There are no rats, dogs or birds—I guess we'll have to bury them all eventually."

"Do you suppose we can see another family some time?"

"I guess so. It's not so bad out there any more. I saw a gang once, but they never came back around here. Area looks too burned out, I guess. I think there's a family a couple of blocks down Division, in the old laundry, but I haven't looked to make sure. A lot of people have guns and they're still afraid."

"You don't carry your gun any more."

Pete rolled over and took her into his arms. "Honey, I hate that gun. I'll never use it again, God willing. I hope you know that. I'm not a killer. If it hadn't been for you and the kids, I don't think I ever would have pulled a trigger—I'd just have run away. It was worse than a war, honey, a lot worse. Nobody even hated anyone—there just wasn't enough of everything to go around. I had to have it for you; he had to have it for his wife and kids. It was as simple as that. I heard guys saying, 'Christ forgive me—' as they pulled the trigger."

"If only they could have talked together first."

Pete shook his head. "Noth-

ing to talk about. All anybody could have done would have been to draw straws. But nobody was drawing straws just for himself. You don't come back home and say, 'Sorry, honey—sorry, kids, we have to make room for somebody else to live.' There just plain wasn't enough to go around. You remember. The time the filters ran out and the treatment didn't work any more—when that orange stuff clogged them all up. That was the worst part. Nobody was fighting over food then—it was filters. Oh, God."

Grace held him while he made little noises and lay looking up at the dim orange light.

"There must be a moon tonight," she whispered. "Oh, how I would love to see it again."

Pete quieted and slept. Soon Grace's eyes closed, too.

The plastic covers on the windows rattled; upstairs the October wind moaned through the black timbers. All through the night outside there was a subtle stirring and whispering, stirring this way and that, dying and returning, moving around the house to this side and that side, steadily growing.

The heat began to leave the house with little snaps and pops; upstairs a window shade rattled and flapped as the cold wind swept in across the burned-out rooms. All night the murmuring went on; there were great sighs as a billow of air passed down the whole block in a single expiration, the sound of a ghost passing through the empty streets. Winter had come.

Pete struggled to wake up. There was something . . . noise—

"Gracie! I hear someone!"

Tim woke and sat up, then Mike and the toddler. Finally Judy sat up, rubbing her goggles out of habit.

Tim said sharply, "Dad—hey, look! On the wall!"

On the wall was a brilliant rectangle of light, the size and shape of a basement window. It glowed yellow-white. Not orange. Beyond the windows was blue sky.

MACAULEY stood next to two small graves in the front yard and called out again, "Hey, anyone in there? Come on outside!"

In a moment Pete appeared in the doorway, shirtless, carrying a gun and wearing a respirator. He stood for a second, then slowly reached up to loosen his mask. He let it fall to the ground and dropped the gun beside it.

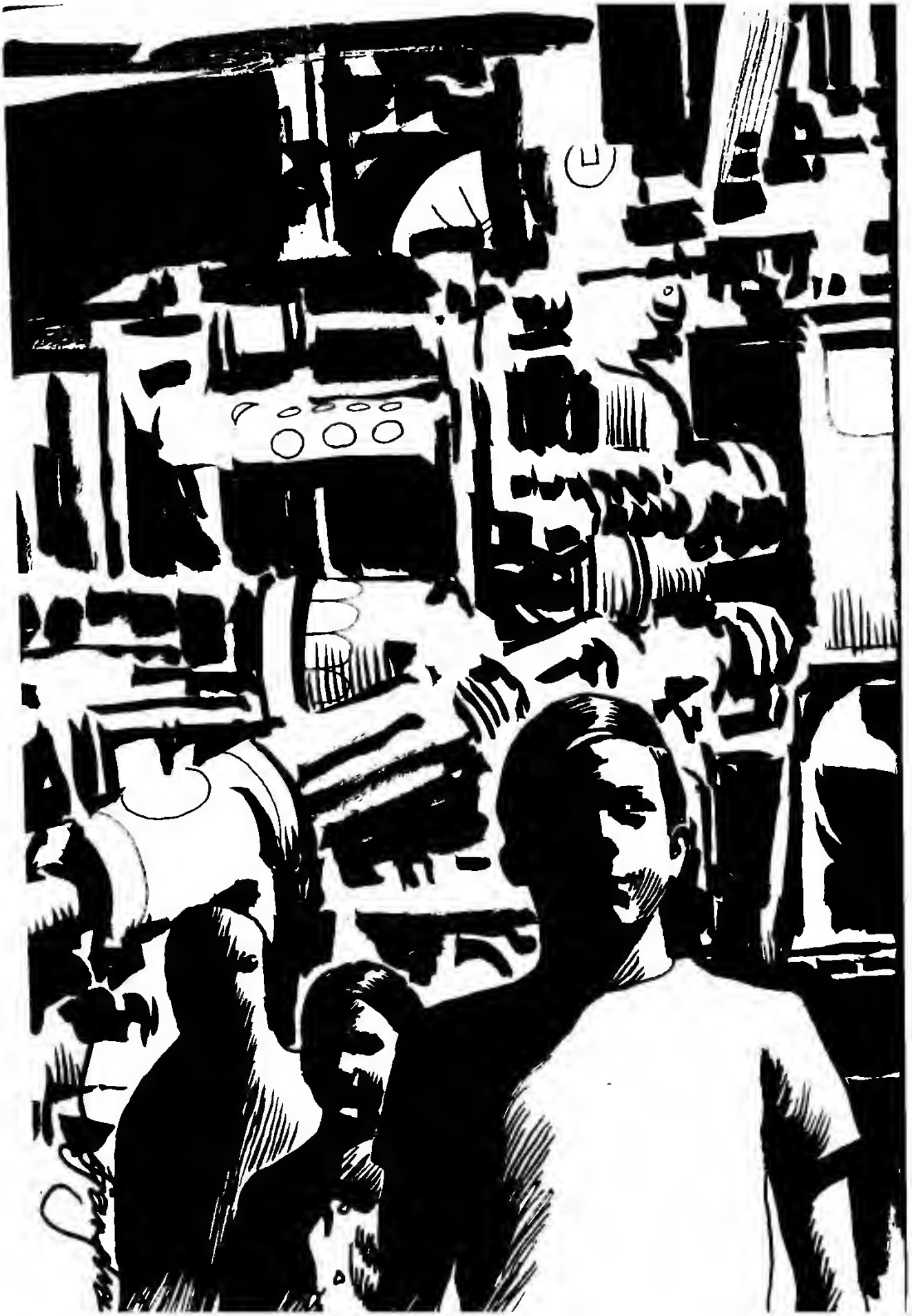
Macauley waved at the sky. "It's real. The front got here last night and that did it."

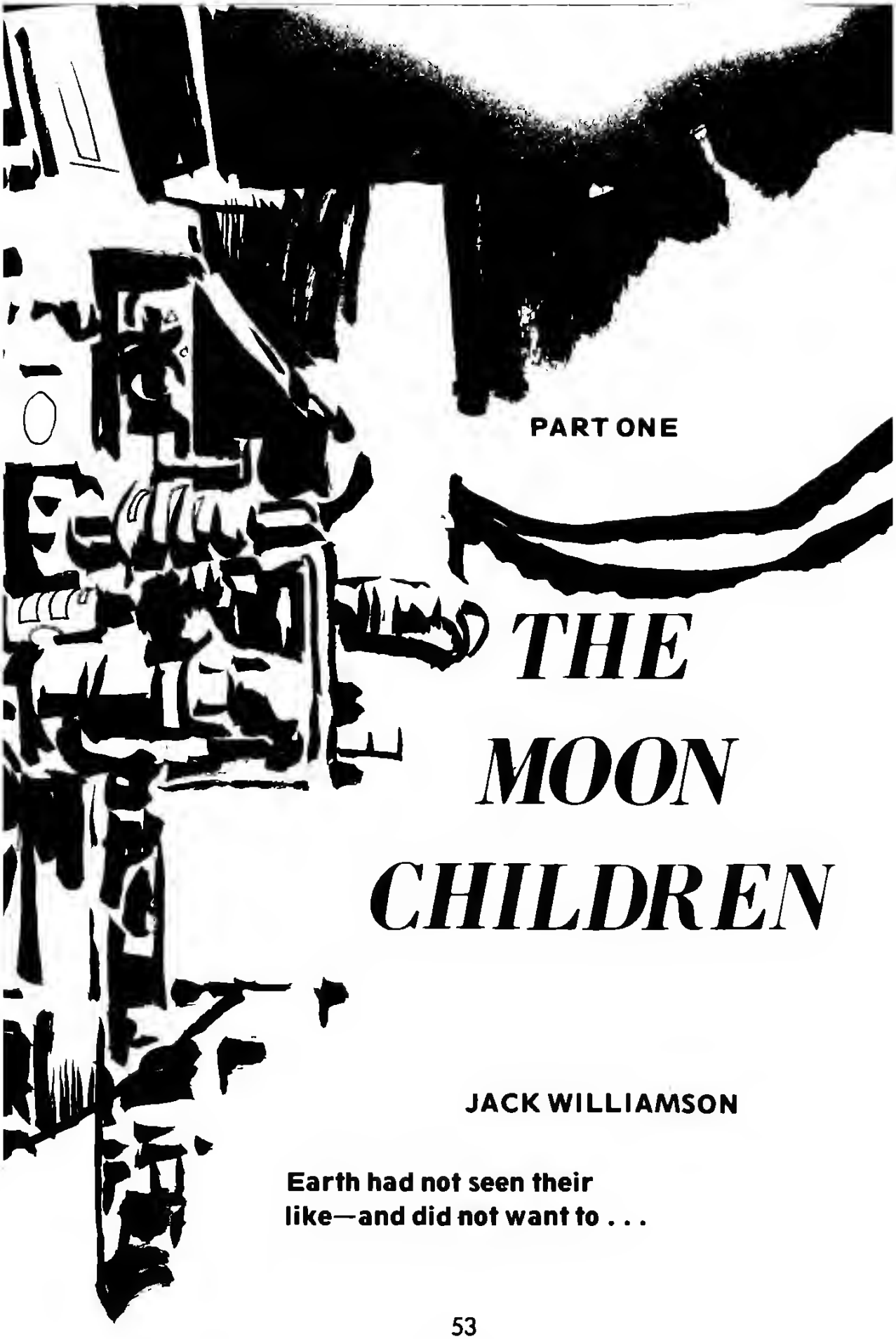
Pete said, "Mister, I have to get my family. I wish I had a drink to offer you."

"I didn't do it." Macauley grinned. He stepped forward and handed Pete a card. "Here are some instructions—we're getting organized. Come to Lincoln Park this afternoon if you can. We'll be talking about food and there'll be some Army doctors if you have anyone sick. It's bad out here, but we made it. See you."

Macauley went striding off down the block. Pete called over his shoulder:

"Gracie, kids! Come on up. It's over." ★





PART ONE

THE MOON CHILDREN

JACK WILLIAMSON

Earth had not seen their like—and did not want to . . .

HEREDITY

I

ON THAT epic day when man first touched the moon, we—my brother Tom and I—lay on the floor of our two-room flat over our father's shop in Newark, drinking in the drama of it through our old black-and-white TV.

One small step for man, one giant leap for mankind . . .

Those electric words of Armstrong's still shiver in my memory. The worn brown carpet smelled of our father's strong Turkish tobacco and our mother's lavender body powder and those stale scents are still mingled in my mind with the unforgettable throb of wild pride that caught my throat when man's searching boot first found the moon.

"Now they've got themselves the gelt." Tom's raw envy nearly spoiled the moment for me. "And here I am, still stuck in Hotzenplotz!"

The history of the moon children begins with that instant, even though they would not even be born for many years. I wish chance had selected a better historian, because their story seems too big for me to tell. Looking at the task, I think of Swift's Gulliver.

Gulliver has always been my favorite literary character. I never understood all the higher criticism of Swift as a theological satirist, but I always felt close to Gulliver—a plain, ordinary human being, reasonable and honest, involved through no fault of his own in affairs that were too much for him.

The lives of the moon children are a vaster adventure than anything Swift invented for Gulliver, and telling it well calls for more style and wit than I possess. Perhaps my brother Tom should have been the narrator. He was involved as deeply as I and he had humor and imagination. I recall our father saying that he was the natural poet of the family and I was only the schlemiel.

"Please, Gamal!" Mother came plaintively to my defense. "You're hurting Kim and teaching Tom too many of your own slick tricks. Better a *schlemiel* than a *gonif*."

"Your own son a thief already? Hoo-ha!"

He gave her a black-eyed blink of wounded innocence and told a Yiddish joke that I didn't understand, though Tom snickered knowingly. Mother stared back indignantly and suddenly decided to send me down to the delicatessen to buy boiled ham hocks for our dinner. Father snarled bitterly at that, but the ham hocks were cheap.

In spite of such bickering Tom knew how to make up with me. We

were generally friends. After the moon landing, when we knew the Eagle was safe in space again, I remember how we stood up and shook hands and resolved to be astronauts.

"What chance have you got?" With a weary sigh, Mother looked up sadly from the potatoes she was peeling. "Gamal Hodian's kids?"

"What's wrong with Pop?" Tom stared at her. "He out-smarts everybody. Anyhow, like the TV says, things will be different now. Kim can be your pet *schlemiel* if he wants, but me, I'm grabbing my share of the planets."

"Don't call Kim that—"

"Pop does," Tom reminded her. "Me, I don't care what he is. I'm on my way to the moon."

"Better finish high school first."

"Better help your little *yukl* blow his nose." Tom smirked at me, "I'll do okay. Pop says I'll be another *macher*, just as good as him."

White-lipped, Mother bent over her potatoes again. My eyes blurred with pity for us both. She was a big, raw-boned blonde. She must have been a striking girl, though her wedding pictures show her already worn and fading when she married.

Once she caught Tom and me rummaging through a black, lavender-scented, lacquer box of old photographs and trinkets he had found in her dresser. Her pictures looked lovely to me, but he was snickering at her "cow-sized tits." She slapped him and snatched the box away, but later she let me see her souvenirs and told how she had run away from an unhappy home in the Arkansas hills, hoping to break into show business.

She couldn't help sobbing when she talked about it. She said her voice had been too thin and her bones too big. She tried the Nashville *Grand Old Opry* and tried Hollywood and tried New York, but her luck never broke. She was a waitress in a third-rate bar when she met Gamal Hodian.

HODIAN must have been an alias, but I never knew my father's original name. He was a dark, stocky, evasive man, who spoke several languages badly, English worst of all. He was secretive about everything. Mother thought he was an Egyptian native. Tom believed he was Jewish. I once heard a business associate call him "a sneaking Armenian thief." He used to say himself that he had no country. His passport was Turkish, but probably forged.

He had wanted to name my brother Tamar and me Kemal, but Mother made him call us Tom and Kim. The Hodian name must have been assumed when he be-

gan visiting the United States, soon after World War II and long before he met my mother. He called himself an importer and we always lived in some low-rent section, over or behind a grimy little shop that was sparsely stocked with the cheap perfumes and tarnished brassware and tattered scraps of carpet that he had imported.

There were other imports, I think, that I never learned much about. Strange customers always made him nervous and he was away most of the time on what Mother called buying trips. One of those lasted nearly three years. Mother told us he was ill in Ankara, but Tom snorted that he was somewhere in jail.

The year I entered high school he disappeared. He had always hated Sicilians and Mother insisted that the Mafia had murdered him. Long after, however, I found among her things a little packet of scented letters mailed in Marseilles to "M. Hobereau" at a Staten Island post office box. In a very feminine French hand they begged him to come back to his *cherie* and their *petit enfant*. Perhaps he went.

Though he had never been a bountiful provider, times grew even harder for us then. Mother closed out the shop and began to look for a job. Some of my father's old friends put her on an uncertain dole, I think to keep her from telling what she knew about them.

Once one of them took me into a bar to talk about my future. A dark, watchful, jumpy little man who stank of garlic and cheap wine, he whispered questions and blinked in unbelief at all I didn't know about my father's connections. Mother must have been begging him to offer me some kind of job, but finally he stalked out indignantly and left me to pay for the drinks.

Mother stumbled or jumped in front of a truck the spring I finished high school. Two fat sisters and a Baptist preacher-brother came from Little Rock for the funeral. I had cleared the empty gin bottles out of the flat and I didn't tell them about the needle marks the coroner had found on her arms.

Tom was already on his way toward the moon by then. Older than I, stronger and darker and smarter, more like our father, he always had a keener eye for the main chance. He weeded the Yiddish expressions out of his speech and earned a college scholarship to major in space science.

I did worse. With no head for math, I won no scholarships. Mother's insurance came to six thousand dollars when all the bills were paid. I went to Las Vegas with my share, to try my luck. It

was bad. The money lasted three nights.

MY ACTUAL education began with that disaster. Sometimes I was hungry. The police picked me up two or three times before I learned I hadn't inherited my father's talents. I tended bar and drove taxis and sold used cars. I bought a guitar and tried crooning folk ballads, but my voice turned out no better than my mother's. I wrote songs nobody sang and a novel nobody would print. I was a disk jockey and a TV reporter and even a political campaign manager—for a candidate who lost.

Tom, year by year, moved closer to our old dream. He went from college into the Space Force and finally into COSMOS—the acronym stood for Civilian Organization of Man in Outer Space. Its idealistic aim was to explore space in peace for the common good. Tom used to poke fun at the high-minded slogan, "free worlds for free men," but he lifted off for the new training base on the moon with the first class of COSMOS cadets. He had already changed his name to Thomas Hood.

He wangled an assignment to a satellite survey team. The COSMOS space engineers were then developing the seeker-type survey rocket, which carried a dozen tons of sophisticated hardware designed to chart and analyze the surface of an airless world from low orbital flight. The seeker survey was planned to cover a hundred satellites and large asteroids, beginning with test flights around Earth's moon.

"Not that I think we'll find anything." Tom grinned. "But the moon's a cozy little mission, close to home and Robin Hudson."

Robin was the jet-set daughter of Howard Hudson, a hotel tycoon he had managed to meet. With her sullen charm and her father's fortune she was more exciting to Tom than the moon was now, since the spacemen were passing it by.

He took me to one of her father's floating resorts, the Antilles Hudson, for a weekend with the other members of his three-man survey team. Seeker One was already in orbit around the moon and Tom's Seeker Two crewmen were waiting for the space engineers to analyze the data tapes.

The invitation surprised me. Annoyed when I wouldn't change my own name to match his, he had begun treating me like a beggar relation. Yet I was glad enough to go—the failure of that political adventure had left me without job or plans.

We found his teammates on a bright sundeck, high above the milky glitter of the hot Carib-

bean. They were quarreling about the real aims of the seeker survey.

"Security!" Erik Thorsen was a huge, red-haired Viking. He had lately shed his major's rank in the United States Space Force—COSMOS personnel had to be civilians—but he still wore his military bearing like a uniform.

"Military security." He banged the table with his empty beer stein. "That's all I'm looking for."

"Then you'll never find it," Yuri Marko answered. "All you'll find is your own destruction. I'm searching for something else—"

HE PAUSED when he saw us. Tom introduced me. Marko was a tall man, owlish behind his black-rimmed glasses, intensely serious. He seated us courteously and turned doggedly back to his attack.

"We're looking for life," he told Thorsen. "Nothing else is worth the cost—"

"God save us from alien life." Thorsen waved his stein like a club. "We've got the people boom right here without looking for trouble on other planets."

"Trouble?" Marko's dark anxious eyes appealed to Tom and me. "Our space neighbors have never harmed us yet. I don't think they will. I hope to find higher life than we are. Something with mind enough to cross the space between the stars."

Thorsen muttered skeptically.

"That's our real goal." Marko bent intently toward him. "I believe life can spring up on the worlds of any star. The older forms should be far ahead of us. If interstellar travel is actually possible, space explorers should have touched our worlds. We should find their footprints."

"On the moon?"

Marko nodded.

"The airless worlds are the place to look. Wind and water wipe out everything. But the signs of a landing on the moon—a broken tool or an empty fuel container or even a literal footprint—might last a good many million years."

"I pray to God we never meet another creature!"

Thorsen lurched to his feet and stalked away. Tom followed to soothe him. I was left with Yuri Marko. His reserved, school-masterish manner put me off at first, but we soon found things in common.

His parents, like my father, had been immigrants—they were Ukraninian defectors from the First Soviet. A political idealist, he had even voted for my unlucky United World candidate. I caught his contagious interest in the seeker project.

The bioforms of Mercury and Venus and Jupiter were still at that time mostly inference and mystery. Nobody had ever

seriously proposed that these near neighbors in space might be advanced beyond us. Marko's hopes took hold of my imagination.

"Just suppose we're not alone." His dry Slavic accents excited me with a sense of the dimensions of the universe I had never felt before. "Imagine other minds—and greater ones. Picture an intelligent society spread across the stars—a society in which our Earth would be a nameless village. Perhaps you can't quite visualize our fellow creatures out in space, but at least the effort gives you a truer image of yourself."

On our last night together at the Antilles Hudson, Robin gave a party for us in her surfside apartment. The lights were dimmed, so that we could watch the waves exploding into white phosphorescence against the glass seawall. Her father was there, the ice-eyed honey king, and at last I guessed why Tom had invited me.

Howard Hudson, with the world in his web of floating hotels, had turned acquiring eyes toward space. The Orbital Hudson and the Crater Hudson were soon to open. What he wanted from us was a quick secret report on anything of commercial promise the survey might uncover. The news was to come from Tom through me, coded into some harmless personal message.

Erik Thorsen flushed with anger when he understood what was up. He smashed his champagne glass against the glowing seawall and threatened to expose the plot. Tom silkily suggested that Thorsen had secret military ties to the Space Force that COSMOS wouldn't like. Thorsen turned pale and agreed to say nothing.

I saw Marko's hurt contempt for me.

"Listen," I begged him. "Tom's taking too much for granted. He never mentioned a word of this to me. I won't touch it. Believe me."

I don't think he did.

That incident brought the party to an awkward end. Tom told me curtly that I was no longer his guest. But as things turned out, I remained at the resort after his team was gone. Marooned there, without money to pay my unexpected bill, I went to the publicity office and talked my way into a copy-writing job.

Surveying the moon, as things turned out, was not the cozy little mission Tom had anticipated. Seeker One crashed behind the moon, with no survivors to report what had gone wrong. Tom and his team were called out to continue the moon survey with Seeker Two.

II

MY BROTHER was not alone in his surprise at what the seek-

ers found. The moon had kept her secret well. The early astronauts and cosmonauts had seen too many empty craters of every size to expect much else. Their successors went on—as soon as they could—to look for more exciting worlds.

The moon was quite dead, but the planets were already promising the menace and allure of unknown life. When the robot probes on Mars began to scrape up samples for analysis their telemetry indicated complex organic molecules. The first men to touch that tawny dust caught a tormenting illness that kept them in quarantine at the COSMOS base on Phobos till they died.

The blinding clouds of Venus veiled the same sort of ambiguous mystery. Unmanned probes brought back simple organisms of microscopic beta-life from the highest levels of her atmosphere, but no vehicle, manned or not, ever returned from the unseen surface beneath.

The first men to station themselves in orbit around her found new riddles rather than answers to old ones. They saw dark dots above the clouds—larger creatures, they suspected, in an ecological pyramid based on the beta-life. They described a sudden color change that stained the blank planet with swirls of brown and yellow. They were reporting an unexplained power loss when their signals faded out.

One lone member of the first three-man team came back from Mercury. He had seen nothing alive and he lived through his year at the quarantine station on the moon, but he brought pictures of a queer crater-ringed, iron-walled tunnel from which his companions had never returned.

Though no probe had yet come back from the atmosphere of Jupiter, a COSMOS expedition had touched the four large satellites. The first craft to visit Io, nearest the planet, reported that its take off had been followed by a narrow beam of intermittent radiation, as if something on the planet were observing it with radar.

Against that background of ominous uncertainty the crash of Seeker One shocked the world. The first response was a jittery fear that something unfriendly had established itself on the back of the moon. Howard Hudson made the most of that brief panic.

I was still working in the Ar tilles Hudson, and what I saw was a business education. Public announcements of the crash were delayed for several hours, first by the fuddled COSMOS bureaucrats on the moon and later by official censors on Earth, while Hudson's private spy system coined money for him.

News of the crash came in on our astrofac circuit, disguised as a weather observation from the Orbital Hudson. It was decoded by a file clerk in our office, who couldn't help talking when space issues dived on the stock market.

Hudson had his brokers sell space industries short. Next day, when the story broke, he used the publicity office to spread a wild rumor. The creatures of Venus had learned about space from the hardware raining out of their clouds. Now they were building a military base on the moon to stop our astronauts from polluting their air.

The news that COSMOS was now transmitting from the moon gave that rumor more support than it deserved. The bottom fell out of the market and Hudson's brokers picked up space stocks for peanuts. Office gossip had it that he cleared three billion in three days.

COSMOS tried to cool the rumors with a bulletin phrased in wooden officialese. Responsible space authorities had found no evidence of hostile action against the lost seeker from any source whatever. Neither the observers on the orbital moon platform or the crew of the seeker itself had reported anything unusual before the crash occurred. Salvage crews already at the site could find no indication of attack or sabotage. Presumably, instrumental malfunction had allowed the survey craft to drift out of its very low orbit and graze a lunar peak. The media would be instantly alerted to any new developments, but there was no reason whatever for public apprehension.

Seeker Two was standing ready to resume routine flights as soon as her crew reached the moon, the bulletin concluded. Thus far the survey had made no newsworthy discoveries.

None, in fact, were actually expected, because the moon was utterly dead. The test flights, however, had already established the value of the seeker vehicles for mapping the resources of other airless worlds.

Five minutes after that stuffy statement came over the transfac net our office was buzzing with livelier news from the moon. It came by laser beam from the manager of the new Crater Hudson. After our laserman had relayed the message to Hudson's office, he replayed his tape for us.

". . . Listen, Mr. Hudson. Don't swallow the COSMOS line. They're covering up something. I don't know what—maybe just the fact that this thing shows them up for idiots. But they're sitting on something I think you ought to know.

"It's true that Seeker One dived

out of orbit for no apparent reason. She'd been flying her survey pattern, just ten kilometers high, flashing a routine report to the platform on every pass. Not a word about any trouble.

"But the story here is that the platform did observe something odd. A peculiar glow on the lunar surface. It blazed out just before the seeker passed over. Her retrorockets fired a few seconds later. A laserman on the platform was following the seeker with a telescope and he saw it happen. He thinks the seeker was trying to land in the glow. Of course she overshot it—maybe by four hundred kilometers. Came down near the moon's south pole at half her orbital velocity. The salvage craft found nothing worth picking up. Meantime, the glow had faded out.

"That's the story here, sir. We thought you'd want to know about that glow. Even though we can't say what it was. The laserman says it looked like a fluorescent effect excited by the surveyor's radar gear. The space engineers out here say radar pulses don't excite fluorescent effects. Off the record, the COSMOS wheels think that laserman was drunk. They aren't talking for the record.

"That's it, Mr. Hudson."

If Howard Hudson made another fortune out of that report, I never heard about it, but my brother and his team were alread on their way to Skygate, the CO MOS center on a mesa in Ne Mexico. By spaceplane to th Earth platform, by shuttle nuk to the moon platform, by skipp craft down to Armstrong Poin the flight to the moon took a d and a half.

Up to a point, the story Seeker Two is easy enough for m to reconstruct. I followed the ficial bulletins COSMOS saw t to release and shared the priva tips we received for Hudso Later, I talked to Tom and h companions. I've even used th tapes and transcripts of the offici investigation, which someho still survive.

SEEKER TWO took off fro Armstrong Point. In circump lar orbit, radar-stabilized at t kilometers mean elevation, s picked up the survey patter With gravimeters and magneto eters and radiation counters a a hundred other sophisticated r search instruments she was cha ing a five-kilometer strip of t moon, recording every possible d tail of every crater and masc every significant surface and su surface feature.

In a wider orbit, four thousa kilometers out, the moon pl form monitored her flight repo and kept watch for any int

ference. Her first transmissions were completely routine.

"All systems go. No anomalies noted."

However, as she neared that point where Seeker One had fired her retro-rockets, the watchers on the platform made a terse report to the COSMOS center at Armstrong Point.

"Platform to Moon Control! We've got something. A surface glow, apparently touched off by approach of Seeker Two. A luminous streak, maybe twenty kilometers long. Like an arrowhead. Brighter toward the point. Location estimated six hundred kilometers from south lunar pole."

Moon Control replied with an urgent query to Seeker Two. What was she observing?

"Lunar surface lighting up under us." Marko's taped voice sounds crisp and cool. "Bright rays spreading north from a small crater just ahead, which looks like an impact point. We've got spectrometers running on the rays. They appear to be fluorescent material scattered north from that crater. Spectral analysis not yet complete."

"Keep in orbit." Moon Control seems more alarmed than Marko is. "Monitor everything but don't leave your flight pattern—"

"Seeker Two to Moon Control." Marko's voice is quicker on the tape, but still oddly calm. "Reporting visual contact with uncharted installation ahead. Something standing on that impact point. Position estimated sixty-nine degrees south latitude, on circumpolar survey track eighty-eight. A shining tower—"

Marko's voice fades out.

"Seeker Two! Seeker Two! Moon Control shouts. "Keep talking. Tell us everything."

"A vast installation!" Even Marko sounds breathless now. "I can't imagine why it wasn't seen before. The tower dome stands miles above our flight path. Dead ahead. It looks like some sort of beacon. Changing color. Red, yellow, orange. It's running through the spectrum—"

"Platform to Seeker." A sharper voice cuts in. "We're tracking you by telescope. We see the surface phenomenon—bright streaks converging toward the impact crater now just ahead of you. But we see no tower. No obstruction. Your flight path looks clear."

For long seconds the tape records no voice.

"Seeker Two." Moon Control is hoarse with tension. "Seeker Two. Seeker Two!"

"Seeker Two to Moon Control." Marko's voice comes back at last, pitched lower, relieved. "We've made voice contact and identified the installation ahead. It's the base of a transgalactic mission

seeking peaceful interaction with mankind. We're following instructions to land at the base on our next orbital pass."

"Don't do that!" Moon Control sounds almost frantic. "Climb clear of apparent obstruction—don't try to land! The platform sees no tower. We think you're caught in some kind of trap. Remember Seeker One. Don't touch your retrorockets."

The tape rustles with solar static, but there is no reply.

"Moon Control to Seeker Two!" The voice rises raggedly. "Don't try to land. Repeat: don't try to land. Break off contact with surface point. Change flight pattern to avoid vicinity of survey curve eighty-eight. Acknowledge and stand by."

The tape runs on, but Seeker Two does not acknowledge.

III

MOON CONTROL at the moment was Sherman Parkinson. Like Erik Thorsen, he had recently resigned a military commission to make himself eligible for the civilian space organization. To judge him by his own standards, he was no doubt a brave and well-trained officer, loyal to the ancient traditions of the United States Marine Corps if not to the COSMOS ideal of a united mankind.

I saw him back on Earth two or three years later, confined to the alcoholics ward of a veterans hospital. The events on the moon had evidently been too much for him. Habit-driven as a dinosaur, he was not prepared to cope with anything so far beyond his own experience.

But the drinking came later. He seems to have remained sober during that crisis. The panel of special investigators saw fit, in fact, to commend him for steadfast devotion to duty.

He was keen enough to see that Seeker Two was flying into some kind of trap, but he seems to have been taken in by Hudson's rumor of attackers from Venus. When Marko ignored his orders, Parkinson called Skygate to ask for military support.

Space was international, Skygate reminded him. As the COSMOS administrator on the moon, he was in command, but he was not to make any use of military force without the explicit unanimous prior consent of the COSMOS directorate on Earth.

Angered, Parkinson issued new orders for Seeker Two to leave the survey pattern and return at once to Armstrong Point. Even under the kiddies' picnic rules of COSMOS, he pointed out, Marko and his men could be taken off flight status for failure to obey direct orders, fined for misuse

COSMOS property and imprisoned up to ten years for conduct endangering public safety. When such threats evoked no answer, Parkinson tried gravel-voiced appeals. Hadn't the team heard the platform's report that the transgalactic base didn't exist? Didn't they know the hazards of contact with alien biocosms? Couldn't they recall their obligations to COSMOS and mankind?

Seeker Two kept on its silent path. When it went behind the moon from the platform, cutting off laser contact, Sherman Parkinson turned his attention to the platform itself, which still had that luminous streak in view. It was slowly fading behind the seeker, the platform reported. The ray-like splash of scattered material was now barely visible, but the circle of the impact crater was still distinct.

The platform picked the seeker up when she came back across the moon's north pole, reporting that she had changed course just enough to follow the rotating moon, so that she was returning along survey curve eighty-eight toward that dying gleam.

Parkinson bombarded her with desperate questions. What kind of creatures manned that transgalactic base? How had they concealed it? What language had they used for voice contact? What data had the sensors recorded?

Seeker Two flew on with no reply.

The platform tracked her back down survey curve eighty-eight. Soon after she crossed the moon's equator, that arrow-shaped impact-splash blazed out again ahead. Presently her retro-rockets fired, lifting her on a long arc that slanted back toward the glowing crater.

The watchers on the platform followed the flare of her jets, which contracted to an incandescent point as she came down. Their instruments recorded an anomalous surge of hard radiation which peaked at the instant her jets went out.

At that point the platform lost contact, as its own orbital motion carried it behind the moon, out of laser range. Its observers reported the rayed crater still glowing on the moon's horizon as long as they could see it..

Sherman Parkinson called Skygate to beg for help. Told again that COSMOS couldn't break its code of peace in space without proof of actual attack, he said profanely that he would get the proof. Ignoring all protests, he took off in an unarmed skippercraft for the site of the crash.

THE sun was rising there when he arrived. Its harsh glare washed out any trace of that dying glow. The impact crater and its north-

ward rays now looked black, his taped report states, as if a shipload of ink had struck and splashed. The skipper's counters detected no anomalous radiation and nothing revealed any sign of a transgalactic base.

There was only Seeker Two, standing tilted among the boulders on the steep north crater rim. She showed neither damage from her reckless landing nor any trace of life. Parkinson dropped cautiously a little farther from the crater lip and made a discovery that exhausted his Marine vocabulary.

As he hoarsely reported to the moon platform, three sets of footprints left Seeker Two. They wandered north among the boulders for a distance of several hundred meters. Finally they returned. It was those returning prints that set off his most explosive diction. Magnet-cleated flight boots had made the outgoing prints, but three sets of bare feet returned.

"Relay this to Skygate." Parkinson paused as if to clear his head and clean up his language. "We've found Seeker Two—and something the medics have to explain. Prints in the dust show that all three crew members went for a barefoot walk and somehow got back aboard."

"Better check your eyes and look again," the platform advised him. "Men don't go barefoot on the moon. Not far anyhow. You'll have to collect some pretty solid evidence, sir, or you won't last long as Moon Control."

Parkinson looked again. He moved the skipper twice to photograph the prints before he sealed his own moonsuit and went out with a spaceman to inspect the seeker.

The air lock had been sealed again. Hammered signals brought no response. Parkinson had to knock out an emergency access plate to cycle the lock and get aboard. Marko and Hood and Thorsen lay sprawled on the deck where they must have collapsed when they got back from their unexplained excursion into the moon's deadly night.

The three men wore no boots, gloves or helmets. Their faces were stained with dried blood, which must have boiled out of their lungs into the vacuum of space. Parkinson felt certain at first that they were dead.

The damage to their bodies was far less severe, however, than might have been expected. Savagely cold as that dust must have been, their feet were not frozen. The rigor of death had not set in. On a second examination, after he had increased the oxyhelium pressure, Parkinson decided that they were still breathing.

"I think they were out collecting this black dust," he reported to the

platform. "The stuff that colors the crater dark. A sort of coarse grit, actually. Sprayed all around the crater. But mostly north, as if scattered by an impact from the south.

"Queer stuff." Parkinson's voice was hoarse and breathless. "The particles are sharp-edged, have a bright black shine and they all look identical. Like nothing else I ever saw. These men were after this queer grit. Their boots are stuffed with it. Their tool pockets are full of it. Hodian had it crammed in his mouth."

Relayed from the platform to Armstrong Point and from there down to Skygate, Parkinson's reports elicited every shade of amusement and unbelief. He was variously advised to change his brand of whiskey, to get the fingerprints of the little green men and to photograph everything before he touched it.

"I nearly wish we had found those invaders from Venus," he told the spacemen on the seeker with him. "We know what to do with enemies we can reach."

SIFTING now through the COSMOS bulletins and the leaked reports from Hudson's spies, I can almost watch the interrogation of the seeker crew there in the hospital under Armstrong Point. Details emerge from the raspy tapes. The dull drone of the fans. The chemical sting of the air. The narrow tunnel room, drill-scarred moon rock glistening with glassy sealant. The three men, cocoons in white gauze, reeking of sterifoam, surrounded by medics and guards. Parkinson barking questions at them, growing redder and louder with every answer he can't accept.

Yuri Marko is questioned first.

"—a secret base." The surviving tape begins in midsentence. Marko's throat is raw and swollen from his unbelievable exposure to the lunar night. His scratchy voice is hard to make out. "But the beings there aren't from Venus, sir. They aren't from any planet of our sun."

Parkinson sounds grittily skeptical. "How do you know?"

"I saw the base." Marko answers. "I talked to its people. They belong to a high culture that spreads far through the galaxy. They've been stationed on the moon a long time to watch our evolution. They're delighted that we've come far enough to qualify for contact."

"Hunh!"

"Sir, think of what it means!" Marko's awed elation comes clearly through his hoarseness and pain. "They want to share their tremendous civilization with us. Our lives will never be the same—"

"There is no base," Parkinson

cuts in. "The platform was watching the spot. I've just been out there. There's nothing but some odd black grit scattered around in the impact crater. If you saw anything it must have been some sort of space mirage."

For a few seconds the tape runs silently.

"Sir, I know what's real," Marko's faint whisper insists at last. "I've tried drugs. I've had illusions. They *feel* different. No matter what anybody saw, that base is real."

"Tell about it."

"It's a structure." Marko pauses as if to think. "But everything about it reflects an unknown culture. The design, the materials, the unbelievable dimensions. Our language doesn't fit, but I'll try to give you my impression. Imagine a tight cluster of round white columns, each a different height. The six lower columns are capped with platforms arranged in a rising spiral around the central tower. It's *tall*! Its onion-shaped dome must have been ten kilometers above our orbit. That dome changes color like a beacon—I think the platforms are landing stages under it. Some were empty, but I saw great globe-shaped ships on two of them." Marko raises his voice. "Sir, does that sound like a dream?"

"It ain't there now," Parkinson sneers. "You say you were in voice contact with—whatever you thought you saw. What language did you use?"

"Why—" Marko pauses as if astonished by his own recollection. "Ukrainian! The voice I heard wasn't human. It was a modulated electronic hum, like—like a computer simulating speech. I remember wondering if it didn't come through some kind of translating device. But it spoke the Ukrainian peasant dialect my parents used at home. That *is* remarkable!"

"Remarkable ain't the word. What happened after you landed?"

The tape whirs quietly.

"I can't recall," Marko mutters at last. "That buzzing voice coached us in. I remember firing the retros. I remember watching the lowest stage of the tower, where I thought we were going to land. I remember thinking we were coming in too low to make it. Then it all fades out."

"Because it wasn't there."

ERIK THORSEN is next on the tape. Parkinson greets him heartily as "Major," as if expecting something saner from a fellow soldier, and asks him to tell in his own words what happened to Seeker Two.

"Yes, sir, Colonel Parkinson." Thorsen crispily returns the military courtesy. "We were all three

on duty, sir. Alert for whatever got Seeker One. We were all observing that luminous patch on the surface ahead. We all saw something beyond it at the same time, sir. What I saw was a fort."

"Venusian?"

"I can't say, sir. It was enormous. Round like a turret. Buried in the moon. Camouflaged with a rocky ridge that looked like a crater rim. It rose as we got closer. Bristling with missiles like I never saw before."

"Did it fire on you?"

"No, sir. Hood was working our radio and laser gear. He picked up a voice commanding us to land beside the fort. That voice—" Thorsen hesitated. "It spoke Norwegian, sir. My own good mother's Riksmaal, that I learned at home in Stavanger."

"Norwegian?" Parkinson's startled voice has lost its warm tone of military fellowship. "Is little Norway building forts in space?"

"That's all I know, sir." Thorsen sounds angry. "I don't remember landing."

"Listen, Colonel." My brother's voice comes on the tape, husky from exposure but still shrewdly fluent. "Don't let 'em put you on. I saw what they did—and it was neither a galactic base or a Venusian fort. They're trying to snow you, sir. To hide a million tons of gold!"

"What's this, Hood? What gold?"

"What I saw was a gold meteor," Tom says. "It hit the moon hard enough to burst. But the mass of it stands up in the middle of that crater. A blazing hill of yellow gold. More gold scattered all around. Hundred-ton nuggets of pure shining gold!"

"Did you hear any voice?"

"My father's voice." Tom pauses, as if struck with awe. "My own father's! He disappeared on Earth a dozen years ago. We gave him up for dead. But here he was, calling from his own little survey rocket—speaking broken English with a funny Turko-Yiddish accent, like he did when I was a kid. He said he was all alone. He'd located that gold with electronic gear and swept the moon dust off it. He wanted us to land and witness his finder's claim, under the conventions of COSMOS. That's what we did." Tom's voice turns sharp. "And that's why these men are lying—to defraud my poor old father of that gold claim!"

"I saw no gold," Parkinson grates. "Let's go over all this again."

HE KEEPS hammering questions at all three men for as long as they can talk. When the doctors make him stop he orders them back to their wards under guard

and calls in the engineers who had been at work on samples of that black grit. Their answers don't improve his temper.

The grit is impure carbon in crystal form, the engineers report. Most of the crystals have been damaged by impact or eroded by long exposure to micrometeors, but apparently they had all once been perfect tetrahedrons, crystals of something new to science.

The intact samples measure nearly eight millimeters on edge. They are slightly radioactive and strongly magnetic. Besides the carbon content, chemical analysis shows six percent silicon, three percent gold, and nearly two percent thorium, with traces of lead and a few other elements. One chemist suggests that the crystals are an unknown allotrope of natural carbon.

"Hogwash," an engineer objects. "They're too much alike. Originally, they seem to have been identical in every feature, down to our limits of measurement. Nothing natural is quite that perfect. I say they're manufactured."

"Who made them?" Parkinson's voice demands. "What for?"

The tapes run on, revealing Parkinson's blundering efforts to force an answer to that question. When Seeker Two has been inspected for possible damage and checked out to another team, he sends her back into orbit to resume her interrupted survey flight.

Observers eye her from the moon platform, as she returns along her charted path to the impact crater. Engineers in skipper craft watch from posts near the crater, prepared to photograph and measure anything that brings her down again.

But nothing happens. The seeker skims low over the crater, observing no transgalactic base, no space fort, no golden meteor. The platform watchers see no surface glow. The engineers discover nothing to photograph or measure.

The voices of Marko and Thorsen and my brother sound stronger on the tapes when Parkinson questions them again, but they refuse to reconcile their contradictory stories. Each remains stubbornly certain of what he thinks he saw, and none of them remembers leaving the seeker to gather that black grit.

Parkinson delays his own second visit to the crater, running down blind alleys and filing his inconclusive reports while he waits for night to end there. The tapes record his landing, timed to meet the lunar sunrise. Now he finds something new.

Reporting to the moon platform, his voice sounds apoplectic. Somebody else hasn't waited for the sun. Some time after Seeker

Two passed over the impact site a cargo rocket has landed there. Magnetic gear has been used to sweep up the remaining crystal grit. A few bootprints are left in the dust, but nothing more revealing.

Parkinson spends half the long lunar day at the site, sifting the surface dust again and drilling a pattern of test holes around the crater, but all he finds is disappointment. No buried mascon, no trace of the impact object. Nothing to explain the crystal grit. Not even a broken tool to identify the raiders.

AT THE Antilles Hudson, we had been able to follow events to this point through those intercepted reports, but now our news from the moon was cut off. Hudson's leaking secrets had spread from the office to the hotel guests. An unfriendly newsman broadcast the story, adding a notion of his own that the midnight raid on the crater had been planned and led by Hudson himself.

Hudson was away when the story broke, but he called home. Half a dozen of us were instantly fired and nobody shared any more tapes from the moon. When Hudson returned—in about the time his private spaceplane might have required for a quick return flight from the moon—he had no comment on the story or his own absence or anything at all. I was still marooned. After all deductions for room and food and bar chits my discharge pay came to twenty-three dollars. I lost that at the hotel casino, trying to win my fare to the mainland. When I went back to the employment office, an unpleasant clerk suggested that I might either wash dishes or swim for it.

I said I'd swim. As I walked the decks that afternoon, uncertain what I could really do, I heard a news announcement that Robin Hudson had arrived to spend the weekend with her father. On impulse, I went up to her suite.

Surprisingly, the doorbox let me in. Robin met me with a moist kiss, but her smile went out when she learned I had no news from Tom. And she turned nasty when I asked her to help me ashore.

Perhaps I lost my own temper. I remember calling her a rich bitch. She replied that she was entirely happy to be rich and quite content that I was a pauper. She added that Tom said I had always been a sniveling *schlemiel* and that they had both had more than plenty of me.

She did listen sulkily, however, when I decided to apologize and explain my predicament. For Tom's sake she called the flight deck and got me a seat on the Key West jet.

Back on the mainland I took a job writing publicity for Dial-a-

Mood, an emotion-conditioner designed for home installation. We were at war with a rival named Joy-Aire. The Joy-Aire people had spread rumors that our toners were loaded with addictive psychedelics. My new job was to plant counterrumors that the Joy-Aire toners had such undesirable side-effects as excessive weight gain, paralysis and idiocy.

For some months all I knew of the moon story came from the colorless COSMOS bulletins. The seeker survey was still in progress, with no further incident. Sherman Parkinson had been replaced at Moon Control by a former manager of the Crater Hudson. Thomas Hood and his fellow crash survivors were well enough to be returned from the moon to Skygate for further examination at the laboratory of exobiology there.

That was all. Filled with news of the amazing bioforms seen flying about the atmosphere of Jupiter, the COSMOS releases said no more about the moon. I mailed two or three letters to Tom at Skygate, which he didn't bother to answer.

Never quite secure at Dial-a-Mood, because I lacked what our president called "conditional sincerity," I kept job applications going out. One went to Skygate. The reply offered me a special assignment to write a report on the commercial use of space science. Though the salary wasn't half what Dial-a-Mood paid, I accepted with delight, because I was so anxious to pick up the story of the moon grit and its queer effects on the crew of Seeker Two.

IV

SKYGATE was their birthplace. A delicate green had dusted the mesa in the wake of rain before I arrived, but its more common colors were sandstone red and the yellow of wind-drifted dust. The spaceplanes came down on an asterite strip fringed with resin-scented *piñon* and juniper. Tiny green oases like scattered beads were strung along the Albuquerque road, but the wild ridges west were as bleak and barren as the moon.

The riddle of that crystal grit was still unsolved as far as I could learn, but my brother and his team had apparently recovered from their crash behind the moon. Discharged from the space hospital, they had been allowed to marry. All three wives were pregnant.

My brother's wife was Robin Hudson. The match surprised me. Tom had always said no woman would get her hooks into him and, frankly, I thought Robin might have done better. Perhaps she was drawn to a sort of wolfish rapacity that Tom shared with her own father—and I think she liked the no-

tion of becoming Robin Hood.

Thorsen's bride was a nurse he had met at the hospital on the moon. Her parents were Japanese and her dainty, sloe-eyed charm made an odd contrast to his brawny Viking power. Though her hesitant English was hard for me to understand at first, I could feel her kindly warmth and her lively comic sense. In fact, I fell in love with Suzie Thorsen.

Marko's wife became almost as dear to me. She was Dr. Carolina Carter, whom he had met at a briefing session in space labs on his way to the moon. The daughter of a black astronaut who had died in quarantine on Phobos, she had earned her own degree in exobiology. She was a tall beauty, scholarly and gracious, but Robin refused to receive her.

She was employed in the labs when I came to Skygate; she worked with cultures of the microscopic beta-life the probes had brought from the upper air of Venus. She was generous with facts for my special report. She and Marko asked me to their home for dinner and it was Marko who later offered me a permanent job, doing publicity for COSMOS.

My own faith in any united human undertaking was pretty well eroded by that time, but I was eager to stay at Skygate. I wanted more facts than anybody yet knew about those small black crystals. I wanted to know what had brought the seekers down and why the contradictory stories of Marko and his men differed so bizarrely from the apparent facts. I took the job.

At that point I had seen nothing remarkable in the sudden decision of all three men to marry. Nothing had prepared me for the coming of the moon children, whose lives I am trying to describe.

Somewhat ironically for me, it presently developed that my actual task in the publicity section was not to tell their story, but rather to conceal it. The unfolding wonders of their lives soon began to draw too much notice. My job, it turned out, was to protect them from the painful consequences of their own surprising strangeness.

Young Nick Marko's first surprising act was his birth. Carolina had carried him less than seven months, and she was still at work in the exobiology lab, running amino acid tests on her cultures of microscopic bioforms, not an hour before he was born.

AT THREE pounds and no ounces, Nick surprised the neonatal specialists with his small-scale maturity. He breathed easily without waiting to be spanked and nursed with an uncommon eagerness.

His color was equally surprising. Born pink and white, neither

tomato-vermilion nor with any visible touch of his mother's rich pigmentation, he turned nut brown in five seconds under the lights on his father's movie camera. Ten minutes later, that instant tan was gone.

His pattern of sleep perplexed his doctors and frightened his parents. For almost a month he stayed awake day and night, learning to turn himself over and ceaselessly exploring every object he could reach. On his twenty-eighth day, Carolina found him limp and cold in his crib. Marko felt no pulse and thought he was dead.

Two physicians agreed. No test found any sign of life. Even his brain waves had ceased. But Carolina wouldn't give him up. She was with him all night, tending him as zealously as if he had been another Venusian bioform. At eighty-one degrees his falling temperature stabilized. Four hours later it began to rise. He woke in her arms at dawn, babbling happily and ready to nurse.

Valkyrie Thorsen was born that same night. No robust battlemaid, notwithstanding the name her father chose, she was even tinier than Nick and just as remarkably mature. Very fair at first, though Suzie Thorsen was almost as dark as Carolina, she turned briefly golden under the lights in the delivery room.

Oddly alike, Kyrie and Nick were equally precocious. They shared the same minute perfection, the same shy grace, the same happy tempers, the same traits of pleasing but nonhuman strangeness. Both had the same unearthly sort of slim, elfin, large-eyed beauty. Both were warmly and perceptive, yet often untouchably aloof. Both slept only at month-long intervals, in the same deathlike way.

They even seemed somehow aware of each other before they ever met. Carolina discovered that one morning when she had driven Marko to work at the Center, where he was now head of the Life Science Section. Baby Nick was with her, slung in a harness to the car seat. He began leaping and crowing as they passed Thorsen's house on the way home.

Carolina had not meant to stop, but Nick cried out as she drove past the house and began moaning so sadly that she turned back around the block. He was yelling and wriggling again with glee when she parked in front of the house.

Inside, Kyrie had been sitting against the end of her crib, solemnly shaking a rattle in time to a dissonant blue jazz number that she had learned to request by beating out its syncopated rhythm. Before Carolina reached the door with Nick, she began tossing rat-

tles and toys out of the crib. When Suzie let them in, she pulled herself upright to greet them, squealing with delight.

With eager screams they persuaded the mothers to put them together. Seated face to face, one at each end of the crib, they fell abruptly silent. Wide eyes changing slowly from opal-gold to midnight black, they studied each other for five endless minutes.

Nick pitched suddenly forward and got Kyrie's doll foot into his mouth. Carolina swooped to the rescue, because Nick was already cutting teeth. Kyrie howled, however, when she tried to pull Nick away. They lay for another hour in the crib, prodding and kicking and gently biting each other, sometimes laughing, sometimes so grave that Carolina was frightened again.

They clung to each other when Carolina wanted to go, until the mothers promised that they could visit again whenever they pleased. Nick seemed to understand. He crooned solemnly to Kyrie until her somber eyes turned slowly golden and then he looked quietly up at his mother, ready to leave.

They let nothing stop those promised visits. One morning, when it was Kyrie's turn to call on Nick, the mesa was buried under an unusual snowfall. Cars were stalled, and Suzie refused to go out. Kyrie whimpered so piteously, however, that Thorsen put on his skis and carried her to see Nick.

MY BROTHER'S child was also surprising, but in more distressing ways. Tom was still at Skygate, in a new job as assistant director of Operation Seeker, but Robin had never liked the place. It was Sticksgate to her. She was abroad most of the time, flitting between her father's floating resorts with her own set, until her unplanned pregnancy alarmed her.

She begged for an abortion, but Tom and her father opposed it. Howard Hudson wanted a grandson and Tom may still have been responsive to some undiscovered influence from the moon grit. She might have ignored both of them, but when her doctors heard about what they called the idiopathic births of Nick Marko and Kyrie Thorsen, they advised her for her own safety to come back to the space hospital and bear her child under expert care.

To Robin's dismay the child wasn't born at seven months. She waited fretfully, staying in a suite at the Skygate Hudson because my brother's house had no room for her nurse and her French maid and her hypnotherapist, hating what the desert was doing to her skin.

At nine months the child was still unborn. By then Robin was

growing hysterical about more than the fun things she was missing and the freckles she was getting. She called her father and her astrologer and a guru she had met at the Bengal Hudson. They all advised her to demand a Caesarean section, but the knife terrified her.

She had passed ten months when Nick and Kyrie came to call. It was a sunny afternoon and Marko had taken the babies and their mothers on a tour of the complex. They had watched a spaceplane roaring off toward the Earth platform and an ancient Indian building a mountain of juniper firewood on a tiny burro and a tall cactus blooming—watched all with the same silent intentness, but a chance glimpse of the Skygate Hudson tower sent the children into shrieking fits.

Their whooping eagerness was so insistent that Marko drove them to the hotel. Robin wouldn't see them at first. My brother came down to meet them in the lobby. With an embarrassed glance at Carolina, he said his wife was not receiving anyone.

Nick and Kyrie refused to be taken away, however, and evidently the unborn child in the tower suite somehow sensed their presence. While the mothers were still trying to quiet the screaming babies, Robin's nurse burst in with a whispered message for Tom.

He asked Marko to wait, while he went back to Robin. A few minutes later he came down again. Looking pale and shaken, he announced that his wife had changed her mind. She wanted to see Nick and Kyrie. Their mothers could come if they liked.

Carolina chose to wait in the lobby, but Suzie Thorsen told me later what happened up in the suite. They found Robin sprawled on a chaise lounge, under a heap of pillows and blankets that failed to conceal the bulge of her belly. The maid, the nurse and my brother were hovering over her uneasily. Her face was streaked with unbecoming tears. Suzie felt sorry for her.

NICK and Kyrie shrieked with joy to see her, but their interest was all in her swollen abdomen. They stared at it with wide and darkening eyes. They leaned eagerly toward it. They prodded wildly at it when Robin tried to take them in her arms.

Suddenly savage, she shoved them off.

"Hideous little m-m-m-m-monsters!" Suzie mimicked her stammering rage with a quaint effect. "Horrid little b-b-b-b-bastards! They're too bright to be h-h-h-h-human. Take 'em away!"

Marko and Suzie took them away. Strangely subdued, they went without protest. Their huge

eyes remained solemn and dark. They clung to each other in a frightened way as Marko drove them home and Nick was disconsolate when Suzie took Kyrie out of the car.

Late that night, Marko and Carolina were awakened by Nick's frantic screaming. They could find nothing wrong with him. The phone rang before they got him quiet and Suzie told them that Kyrie was also moaning and sobbing in terror that had no visible cause.

Hoping the two might comfort each other, they rushed Nick across town to Kyrie's nursery. Sitting in the same crib, the two stared blankly at each other and howled in harmony.

When Marko thought of the third child he called Robin's suite. The French maid told him that she had gone to the hospital for a Caesarian delivery. Marko talked to her doctors, who were already washing up. They said they had waited as long as they dared. They refused to delay the operation.

Nerved by a new burst of terror from Nick and Kyrie, Marko called Colonel Petrov. A nominal civilian, Maxim Petrov was the retired Sino-Soviet officer who had replaced Sherman Parkinson as head of the Space Studies Center. He had no more faith than had Parkinson in the altruistic ideals of COSMOS, but he was just as anxious to discover the power of the moon grit. When Marko pointed out that Robin's unborn child would be another guinea pig that might help him crack the mystery, Petrov called the hospital.

Robin's surgeons huffily agreed to wait for additional clinical tests. The tests revealed an unknown antigen in her blood and a dangerous sensitivity to the anesthetics they had meant to use. They put off the operation over Robin's profane protests.

The moment she was wheeled out of the delivery room, Nick and Kyrie relaxed in their cribs and went happily to sleep, a week earlier than usual. My brother took Robin back to the Skygate Hudson under mild sedation, sobbing and cursing him and his child.

She had another month to wait, swelling enormously and quarreling venomously by phone with everyone she knew, refusing to be seen by anybody except her nurses and her doctors and the puzzled staff of exobiologists and other specialists they had called in.

Carolina believed that Nick and Kyrie were aware of her delivery when at last it came. They wanted to be together and they cooed and trilled excitedly, sometimes with expectant attention, large heads lifted as if they were listening. Whatever they perceived, it did not alarm them.

Robin's delivery was normal—in fact easier than the obstetricians had expected—but her child was not. A lax, shapeless, sluglike thing, it weighed thirteen pounds. It was all body, the head grotesquely broad and flat. The limbs were undeveloped flippers, with the barest hint of human form. Short dark fur covered it all over.

The obstetricians failed to start it breathing. They found no pulse or any other sign of life. Its temperature was sinking fast. Helplessly they surrendered it to the jostling specialists, who looked for brain waves and blood-reactions and autonomic reflexes. No test revealed anything. An empty bag of unnameable flesh, the creature hung inert and monstrous in their hands.

They declared it dead.

V

CAROLINA asked to see Robin's baby. Relieved to wash their hands of the inexplicable, the doctors let her take it. She bathed it and held it in her arms all night. Its falling temperature steadied at eighty and finally began to rise. By noon next day it was awake.

The specialists had it carried to Robin's room, urging her to nurse it, because they were afraid to risk bottle feeding. Though they had warned her the child was exceptional, she hid her eyes after one glance and shrieked until her physician ordered heavy sedation.

My brother hinted that the creature should simply be allowed to die. Merely as a biological specimen, however, it was far too valuable to be abandoned. Many of us, besides, had caught a warmer personal interest in it from Nick and Kyrie. Since neither parent wanted to see it again, Marko and Carolina took it home until the nursery was finished.

That nursery was actually a special laboratory, designed by Colonel Petrov himself for the observation of these unique guinea pigs. A low-roofed ranch-style building, it looked deceptively homelike, but there were offices and instrument rooms and a record vault as well as space for all three children and their custodians. One-way mirrors and a network of sensors were built into the walls.

Robin's baby was moved there as soon as a room was ready, a week ahead of Nick and Kyrie. To Carolina's surprise, they seemed to miss it painfully, even though it was nearly always asleep. Allowed at last to explore their own new quarters there, they squealed with glee when they discovered that child would be with them again. Though most of the nurses shrank from its shapeless strangeness, they clamored to be near it, their

great eyes glowing as if it were beautiful to them.

By that time Carolina had decided that it was going to be male. She named it Guy, after the way she heard the shouts with which Nick and Kyrie greeted it. Its soft flippers had begun to look more like hands and feet and it sometimes twitched and blinked when the other babies were near, though for several months it made no sound at all.

Robin tried peyote for her jangled nerves and yoga to restore her precious figure. She returned to the Bengal Hudson with her guru and married him before the year was up, promising a gossip columnist that she would never bear another child.

Divorce had done no apparent damage to the curious tie between my brother and Howard Hudson. Tom left his Skygate job as soon as Colonel Petrov would release him and I heard that he was joining Hudson in a venture to exploit the astonishing discoveries on Mercury, where the seekers had begun to chart wide craters walled with piled nodules of alloyed iridium and gold—one exobiologist made the bizarre suggestion that those rich nuggets were excreted waste from the unknown creatures that had dug those iron-walled tunnels.

In spite of those rich finds, and stranger ones reported on the moons of Jupiter, COSMOS had begun to fall apart. The rumors and suspicions that grew from the riddle of the moon grit raised new tensions between its uneasy partners. Maxim Petrov resigned in the wake of a scandal that linked him with a Sino-Soviet spy ring. Washington threatened to cancel the lease on the mesa and reclaim all the Skygate installations. Erik Thorsen became the new director of the Center through a precarious compromise and was soon accused of setting up his own spy apparatus for the United States.

NAIVELY, as we sat one morning over coffee in the nursery kitchen, I asked Marko what those spies were after. After all, COSMOS was neutral and international. Our research reports went out to every member. I could understand Howard Hudson's interest in the seeker surveys, but we had no iridium boulder fields here at Skygate.

"We have something else that might surprise you." Marko gave me an owlish blink. "Thorsen questioned me the other day and finally warned me against his rival spies. What they want is information about the three fathers—him and Tom and me. About our sex lives."

"Why?"

"The children are the most exciting results of space research up

to now—and a deeper mystery than the nature of whatever dug those tunnels into Mercury. A lot of scientists and several governments want to know whether there'll be more."

He stirred his coffee moodily.

"Carolina wanted another," he added at last. "But the lab says my semen's sterile now. Thorsen didn't exactly say, but I think he's impotent—and distressed about it. Which leaves your brother."

I thought that over. In the divorce action Robin's lawyers had named a hotel manicurist, a nurse in the space hospital and a typist in the records section. Had some of them been secret agents?

"Tom's gone," I said. "He may be back in space—we don't keep in touch. But who would want another creature like his son?"

"Don't look down your nose at Guy." Marko seemed almost hurt. "Nick and Kyrie idolize him. My wife has learned to love him, too. She keeps quoting proverbs. She says you can't see the oak in the acorn."

That image of the acorn stuck in my mind, apt for all three children. The mystery of life showed special shapes in them. Delicately new, they kept unfolding unexpected strength and startling surprise.

Marko was in charge of the nursery now, with Suzie and Carolina as official assistants. They nurtured those seedling beings with love and wonder and frequent alarm. Guy Hood slept most of the time for his first few years, but Nick and Kyrie kept everybody busy recording the data Thorsen demanded.

Though they looked more human than Guy, their bodies were equally strange. All three possessed temperature regulators that baffled the biologists. When snow fell they wanted to play in it naked. The hottest desert sun gave them only a temporary tan. Nudists by nature, they had no use for clothing. We learned to let them go without it.

MARKO tried to run intelligence tests. Even when he was awake, however, Guy Hood had no mind that anyone could measure. Though Nick and Kyrie seemed happily cooperative, their erratic responses were a puzzle until Carolina discovered that they were making a gay little game of observing their observers.

When Suzie taught Kyrie to wink her varicolored eyes, she started winking at everybody who tried to spy on her through the one-way mirrors, no matter how silently. Thorsen wanted to know how she sensed us, but nobody could find the answer.

Nick discovered arithmetic before he could talk. Two months old, he began playing counting

games with Carolina, pushing beads on a toy abacus to add and subtract integers up to ten. A month older, using a larger counting frame Marko made for him, he learned division and invented a system of his own for extracting roots.

Beyond that point his mathematical intuitions became vaguely disturbing. I remember the puzzled dread I felt one day in Marko's office. We were watching a salesman demonstrate a compact new computer. Carolina came in carrying Nick, who was always as eager as anybody to see new lab stuff.

Not six months old and not yet walking, he leaned and whined until Carolina set him on the desk in front of the computer. The amused salesman pointed out the switch and gasped when Nick started the machine. He ran it for half an hour, tiny fists tapping out his problems with a gingerly care, bald head bobbing to bring his huge eyes within an inch of the answers.

Abruptly, then, with a shy little smile that seemed to hide boredom with the machine and amused wonder at all of us, he tore the paper tape from the machine. Before Carolina could help he slid through a chair to the floor and scurried back to rejoin Kyrie where she sat in the hall, hammering an empty pabulum tin with a teaspoon and the plastic case of Marko's slide rule, beating out an irritating rhythm that somehow stuck in my mind so that I can still recall it.

I asked the salesman not to talk about the children, but when he was gone I discussed that disquieting incident with Marko and Carolina.

"Sometimes those two frighten me," Marko admitted. "I got the oddest feeling just now that Nick can think circles around our new computer."

Carolina put a warning finger to her lips, though he had closed the sound-proof office door.

"What are they?" I almost shivered when I recalled the enigmatic amusement on Nick's elfin face as he crumpled that discarded tape. "What will they be when they are grown?"

"Guy's the one who worries me," Carolina whispered. "The other two are happy. Bright as they are, I understand them most of the time. But Guy's different. A different breed. I think I love him just as much—he does need love. But I can't help feeling that he was born for tragedy. I'm afraid for Guy!"

DIVERSITY

VI

OUR work with the children was wonder and delight, at least for the first few years. Carolina used to say they were like the blooms of some exotic tropic bulb unfolding. With each new day they brought us glad surprises.

Music was Kyrie's first interest, but she seemed bored with all our favorites before she learned to talk. She began beating out her own music on any resonant object she could reach, sometimes trilling it in a keen mocking-bird voice, inventing complex scales that seemed difficult and unmelodious to us.

Seven months old, Nick walked his first steps on the same morning she uttered her first careful syllables. Gravely intent, they tutored each other all day.

That afternoon they swayed hand in hand to meet Carolina, proudly cooing in unison, "Watch us—walking!"

Nick learned to read before they were two, apparently from a set of picture-books about the planets. He taught Kyrie. They were not yet three when Marko found them one morning on the nursery floor, huddled over his desk dictionary.

"Now." Kyrie's bird-voice had an interrogative lilt. "Biocosm?"

She turned the pages to find the word and Nick bent over the book, his whole head sweeping the lines at a distance of two inches.

"A planetary ecology of related and compatible bioforms." He formed each word with painful precision, mispronouncing one or two he had probably never heard. "Though all known biocosms of the solar system display certain similarities, biological materials from one biocosm are generally useless or poisonous to members of another."

"What does that mean?" Kyrie looked up at Marko. "Uncle Yuri, what is a biocosm?"

"A chain of life," Marko said. "Here on Earth, we all belong to a single chain. Cows eat grass and we eat cows and the grass grows on animal stuff. We breathe out carbon dioxide the grass needs and the grass breathes out oxygen for us. In our own biocosm we are all made of similar chemicals and we are all adjusted to one another."

Nick nodded brightly, but Kyrie was still frowning.

"We call our own world the alpha biocosm," Marko said. "Our space machines have to carry little alpha biocosms, because we can't breathe the air on any other world or eat the things that grow there. The beta-forms of Venus and the delta-forms of Jupiter can't fit into our chain. That's a problem for space explorers. Different biocosms can't easily be friends."

"Thank you, Uncle Yuri." Kyrie shook her head, still unsatisfied. "Now what about Guy? Does he belong—" she caught her breath— "to our biocosm?"

"We don't know much about Guy." Marko hesitated uncomfortably. "We're learning all we can. We want to help him grow up and be happy."

"Please—help Guy!" Her small voice quivered. "We need you,



Uncle Yuri. You and Aunt Carolina and Uncle Kim. Because my own man-father is afraid of Nick and me and he doesn't love Guy at all!"

We tried to help all three. Nick and Kyrie needed little teaching. Nick soon began consuming books with a computerlike efficiency that almost alarmed me. After music, Kyrie found and dropped a dozen other interests, as if searching for something she could not identify.

WE ARRANGED a vacation tour for Nick and Kyrie during the summer they were four. Though we had trouble with hostile crowds in several cities, the children made a light-hearted game of evading both mobs and protectors. Nick learned Ukranian from Marko's father in Lucerne and picked up spoken Japanese from Suzie's mother in Honolulu—he was disappointed when she didn't know the ideograms.

Though Nick seemed to be drinking in everything with big-eyed delight, Kyrie made us cut the trip short. Guy had been left at Skygate because of the spreading fear of space aliens and Kyrie kept fretting that he was lonely. Perhaps he was. He squirmed against her like a hungry kitten when he saw her again and mouthed a sound she said was her name.

Guy was now awake three or four hours at a time, though he slept for days on end. His furry limbs had begun to develop, but all his movements were still sluggish and uncertain. Kyrie got him to stand that summer, towering over her like a gray ogre, but another year had passed before he could walk or speak. Even then, his speech was a slurred mumble that she had to translate for the rest of us.

Somehow Guy became a special friend of mine. Perhaps I found it easy to forgive his slow gray strangeness because he was my brother's son. He seemed to show a kind of animal affection for me even before I could understand his voice, when he snuggled up for me to stroke his fur.

As he became aware enough to miss his parents, I suppose he tried to replace them with me. I remember a painful scene in the nursery during the summer he was five. Kyrie had been sitting on my knee. She slipped down when Guy shambled in. Perhaps he wanted her place, but he had grown too heavy to be held. He leaned over me, whining and clumsily pawing at me. A wave of his special odor struck me—a sharp clean scent, a little like a dry barnyard.

"Little Guy wants to know what he is." I smiled when Kyrie called him little, but she was very serious. "He wants to know why he's not like Nick and me. He can't see why he has no father and no moth-

er to love him and make him beautiful."

Robin was on the moon by then with her fourth husband, a lunaculture faddist who was converting the Crater Hudson into a low-gee rejuvenation mecca for aging billionaires. My brother had managed to disappear completely.

"You're all right, Guy." I touched his naked fur. "You do have parents. They're traveling. Your mother's on the moon, but I'm sure she often thinks of you—"

He mouthed a savage sound. Kyrie rushed to him and reached up to wrap her golden arms around him. Tears welled out of her midnight eyes.

"We do love you, little Guy." She looked helplessly at me. "He wants to know why he's something nobody—hardly anybody loves."

"Tell him the three of you are different." Though I knew Guy could understand, I found myself speaking to Kyrie instead. "Different—and very wonderful! Tell him we're working in the lab to find out why."

I was trying to look into Guy's face, but its inhuman strangeness distracted me. The eyes were wet lumps, yellow-rimmed, with no expression I could read. They stared without winking. Slow tears ran out of them to make streaks down his furry cheeks. His voice croaked dismally again.

"Little Guy—you, too, are wonderful." Kyrie gulped and looked at me, her enormous eyes almost accusing. "He says he's dull and ugly like a toad. He wants to know why he isn't beautiful and bright like Nick."

There was nothing I could say.

IN THE publicity office we had a variable mission. At first we tried to sell the children as the exotic and delightful wonder-babies of the moon. When that program began to sour we tried to shield them from all the fear and fury we could not prevent.

Once I showed Marko our file of hatemail. Its growing virulence sickened me. Writers called the children filthy names, accused them of kinship with the enemy biocosms on the other planets, even demanded their destruction.

"To a lot of people," I told Marko, "they're monsters. Not just Guy—though I guess he does look the part. But Nick and Kyrie, too. I can't understand it. Why should anybody hate them?"

"They're vulnerable." He slowly crumpled an ugly letter. "I suppose we all look for demons outside when we can't endure what's in ourselves. We project our hates upon them. The creatures of Mercury and Venus and Jupiter might do for demons, but they are out of reach. The children are strange and here and vulnerable."

"But they're human," I protested. "Partly, anyhow."

"Partly." Marko scowled at the paper ball. "But partly not. I suppose that explains the irrational nature of the hatred." He nodded somberly. "The horror of the old taboo against sex between beasts and men."

I often thought of that. Guy at least, with his sullen moods and shaggy fur, must have seemed as alien to people outside as the beta-life of Venus was. Though Nick and Kyrie were appealingly human most of the time, I remember disquieting bits of strangeness.

Even their play sometimes disturbed us. I remember walking into the nursery one afternoon, the summer they were four. Absorbed in the game, they ignored us. Nick kneeled on the floor, carefully erecting a tower of white plastic blocks. Kyrie was dancing around and around him on tiptoe, carrying an old golf ball over her head and buzzing in an odd way through her teeth. Guy squatted near them, following the ball with his sleepy yellow stare. I was smiling at their grave intentness, but Marko froze.

"Nick! What's all this?"

"Just a game, Dad."

Painstakingly, Nick crowned his tower with a bright orange block. Marko bent to stare. Nick glanced at Kyrie. Her buzzing changed. Dancing closer, she brought the golf ball down along a spiral path and placed it on a shelf of the tower.

"Nick—" Marko's voice was so queer and high that Kyrie gave him a wondering look. He caught his breath and tried again. "Where did you learn this game?"

"Just made it up."

"Will you tell me about it?"

"You saw it, Dad." Nick shrugged. "That's all it is."

"But I can't understand what I saw." Marko turned to Kyrie, almost desperately. "Can't you help me?"

"I'll try, Uncle Yuri." She nodded solemnly. "In the game, we don't belong. We're spacefolk marooned on earth. We find a way to send a message to our own far people and they send a ship to pick us up." She touched the ball. "This is the ship."

"The tower." Marko's pointing finger trembled. "What is that tower?"

Kyrie turned to Nick, puzzled.

"It's a tachyon terminal." He spoke the words with a careful precision. "You see, Dad, the ball is a tachyon ship. That means it goes faster than light out in the space between stars. But here it needs a proper terminal, with a tachyon beacon to show it where to land."

"I—I see." Marko gulped, trying hard to play the game. "But how did you learn about tachyons?"

"In a book." Guy nodded vaguely toward the nursery library. "A book about ships and stars. The writer said tachyon ships would never work, because the speed of light is a barrier we could never pass. Maybe he's right. We're only playing a game. In the game we just skip around the barrier, by using a minimum-energy shift of state." He must have seen my puzzled look, because his elfin face grew graver. "You see, that converts the mass of the ship to the tachyon state at any speed we like."

"I—I see." Marko was blinking again at the plastic tower. "Why did you build it just that way, Nick? I mean, with those seven columns and the colored block at the top."

"I don't know, Dad." Nick shrugged, with a look of bored impatience. "After all, it's just a game."

"And Guy is sick of it," Kyrie piped. "Because he doesn't dig tachyons. If you will please excuse us now, he wants to go out to the pool."

Still unable to walk alone, Guy whined eagerly. Kyrie ran to him and waited for Nick to help. Together they hauled him upright. He tottered away between them, a gray ungainly beast.

THE toy tower was left behind. Its stacked blocks were cylinders of a common magnetic plastic from a set Carolina had given Guy. I saw nothing special about them, but Marko ran for his camera to film the tower and made me dictate a record of the whole incident, before he would answer my questions.

"That's a model of the terminal I saw—or thought I saw—where the grit brought us down on the moon," he told me then. "The seven clustered columns. The rising spiral of landing stages around the taller central column. That colored beacon at the top." He frowned at me and shook his head. "I'd like to know where they got that game."

"Let's look."

We found the book about ships and stars, but there was no picture of a tachyon terminal. Carolina assured us that she had never told the children that much about the grit and the riddles of their origin. After a long and fruitless discussion our reports went into the file of unsolved problems.

While that file grew thicker, year by year, COSMOS slowly crumbled. Politicians began to call it a nest of spies and traitors. Our budgets were sliced. Able people quit. Though we tried not to alarm the children with any news of outside dangers, I remember something Carolina said.

We were in the exobiology lab, where she still worked after hours.

Blue sterilizing lamps washed the walls with a pale, painful light. Whispering from the filters, the air was still thick with the queer scent of the beta-life bubbling in the glass-walled incubators—a stinging reek like molding hay. She had been showing me her slides and models of those microscopic aliens with a glow almost of love, but her animation died when I spoke of the future of COSMOS.

"It's like the sand castles we used to build on the beach when I was a kid. The sea keep eating at them. I'm afraid of what will happen to the children when it's gone."

"Perhaps it won't go." I felt impelled to defend the future of the organization, not from any real faith in it, but I suppose because hopeful promotion had been my profession. "I know they keep cutting our budgets. But we can make a strong case for the seeker project at least, now that it's finally paying off."

I was thinking of the new wealth and knowledge that space had begun to promise. The diggers of those ironwalled tunnels into Mercury had yet to show themselves, but the seeker craft were reporting unbelievable billions of tons of iridium and gold in the nuggets that formed those crater-like ridges around the tunnel clusters.

Critics objected that gold wasn't yet worth its freight from Mercury, but Jupiter was already seeming to offer more exciting knowledge and cheaper transportation. Flying objects had appeared near that giant planet—gathering and wheeling as if to observe the spacemen towing the prefab sections of Jupiter Station One—moving with such remarkable speed and freedom that captured specimens were expected to reveal some radical new principle of space travel—if specimens could be captured.

The bold passes and swift escapes of those Jovian beings seemed to prove some kind of intelligence. The indications of advanced life on Venus and Saturn were not quite so clear. A second station in orbit above the newly mottled clouds of Venus had recently reported an unexplained loss of power before it ceased transmission. No Saturn probe had ever returned, or sent back any report at all from the close vicinity of the ringed planet.

"Why should we fear our neighbors in space?" I asked Carolina. "They've been next door to us for several billion years, and they haven't hurt us yet."

"It's not the planets I fret about," she said. "It's people. Being black, I can't see human nature quite like you do, Mr. Hodian. I'm afraid we're not as noble as the founders of COSMOS wanted us to be. That's why we must give the

children a chance. I hope they'll be wiser than we ever were."

For a moment we stood silent, brooding over their uncertain future.

"Of course I want to know what dug those tunnels into Mercury," she went on suddenly. "And why our Saturn probes don't get back. But I think human nature is a bigger danger. To COSMOS. To the children. Maybe even to our sister biocosms."

She paused to frown at the incubator where her reeking beta-cultures grew in frothing flasks of milky liquid.

"We've had trouble for years with some unknown agent that kept killing off the cultures," she said. "Now I think I've found the killer. If the more advanced Venusians dislike human beings, perhaps they have a reason."

THAT was all she told me then, because she wanted to repeat some of her experiments, but she called me back a few nights later, along with Marko and Thorsen, to hear about her discovery. When we gathered around a table in the lab, she tried to hand Thorsen a flask of pale fluid clotted with little brownish lumps. He held his nose and backed away.

"It can't hurt you, sir," she assured him softly. "It was a beta culture, but it's dead. I killed it with a drop of human juice. The actual lethal fraction is a common enzyme. A human molecule that seems to multiply like a virus in the beta creatures. If the higher forms have no more immunity, one drop of human blood could spread a terrible contagion among them."

"So we're poison to them?" Thorsen relaxed, grinning now at the flask. "I suppose they'll learn to respect us."

"That depends on their level of evolution." She gave him an odd look, both baffled and sad. "Anyhow, we have other problems, closer to home."

Thorsen himself was one of those problems. To understand the children, as Carolina said, we needed to know precisely what the grit had done to the seeker's three-man crew. Though my brother had disappeared, Marko and Thorsen were still under study.

Except for his sterility, Marko displayed no permanent effects of his experience on the moon. Though Thorsen angrily denied any effect on himself, he had lost flesh and youth and nerve. The flame of his hair and beard had slowly dulled to a rusty gray and his old boisterous charm had died into a bleak taciturnity. We had watched that change with sharp concern, yet the outcome surprised us. He tried to kill Nick.

It was a warm autumn afternoon, the year the children were

five. Suzie had arranged a picnic, hoping to revive Thorsen's fading interest in the children and perhaps also in herself. Nick didn't want to go, but Kyrie thought Guy would enjoy the outing.

Trouble began when Thorsen commanded the children to dress. Kyrie slipped obediently into a sunsuit and brought shorts for Guy, but Nick came out naked. Thorsen lost his temper and shouted a new command. Nick said quietly that he didn't need clothes and wouldn't wear them.

Thorsen called him indecent and pulled him out of the car. He walked quietly back to the nursery. By that time Suzie was crying and Guy had begun to moan. Kyrie ran after Nick and brought him out in a pair of red swim trunks.

I watched them drive away in Suzie's new electric car—a gift from Thorsen in the wake of some earlier domestic incident they wouldn't talk about. He looked grim and gloomy at the wheel, but Kyrie was soon happily excited, showing everything to Guy.

AN HOUR before they were to return the hospital called us. We found all three children laid out in the emergency ward, splashed with blood and grime, limp as death.

Carolina rushed to them and soon assured us that they were only sleeping. Mark and I left her to tend them, while we tried to learn what had happened. Suzie had driven them back in the car, but she was battered and exhausted, already under sedation. A police airtrac picked Thorsen up at the picnic spot. His deep facial scratches were still oozing blood. He glared at us sullenly and told the officers to take him on to jail.

We got the story the next day, when Suzie and Kyrie were awake. The explosion had come when the new car stalled on the last rocky climb toward the seep we called the Indian spring, where they had planned to eat. Thorsen lifted the hood, read the fuel cell handbook and finally said they would have to wait for help.

But Nick spoke up. He said the cell just needed adjustment and reached past Thorsen to twist a relief valve. The motor hummed at once, but Thorsen came apart. Gasping with a wordless fury, he seized Nick's throat and swung him off the ground.

Suzie screamed, while Nick kicked and strangled, but Thorsen ignored her. She attacked him, clawing wildly at his face. He freed one hand long enough to slap her off the road. Guy hugged Thorsen's leg, mewing like a hurt kitten, as the man shook Nick with both hands again.

Kyrie was more effective. She

found the jeweled rescue gun in Suzie's purse—a gift from Thorsen himself when he had brought his bride back from the moon to the turbulent Earth. One quick jet knocked him out.

Nick was limp by then, but Kyrie knew he was still alive. She helped Suzie load him into the car and waited until they were safe on the mesa pavement before she herself went to sleep.

Released by the police when Suzie wouldn't file charges, Thorsen took a room at the Skygate Hudson. Marko and I tried to question him there. His patched face looked pale and drawn and his breath had a faint alcohol reek. At first he wouldn't talk at all.

"No, I'm not drunk!" he burst out at last. "Yesterday I wasn't even drinking. The whole thing became just too much for me when that smart-faced kid fixed the car. I can't stand 'em any longer."

"But they're our children." Marko blinked in owlish astonishment. "Little Kyrie's your own daughter."

"A damned cuckoo!" His face was red and twitching now. "They're all cuckoos. Something planted 'em in us—to be hatched in human bodies. But they're actually no kin. No more human than a crocodile!"

"You can't believe—"

"We've been damned fools!" He raised his voice to drown Marko's. "Trying to bring them up—to take the world away from us. They've got to be exterminated."

We stood staring. I couldn't understand him. After a moment he staggered away as if exhausted by his own trembling violence.

"I guess I was a fool today, letting that little devil tempt me to touch him, but they're all too much for me. Too clever and too quick. I saw that months ago." He paused to peer at us, bewildered and afraid. "Can't you see what demons they are?" he whispered desperately. "Can't you see what they're scheming to do?"

VII

THORSEN'S assault on Nick revealed new fissures in the sand castle of COSMOS. The directors quarreled with the doctors at the space hospital about his sanity, but he was finally relieved of his post and transferred to a psychiatric clinic for treatment. The directors failed at first to agree on a man to replace him. They finally called Marko into a closed meeting and sent him back as acting head, with a new program for the Center.

"Half the directors think Erik was right." He shook his head gloomily. "They'd like to get rid of the children. Since they don't know how to do that they want us to watch them. We're to record

every change we see. Report every word and every act."

The crumbling castle thus became a sort of prison, but we were able to keep the children safe inside it a little longer. Though the new joint research committee gave us no funds for formal research, Nick and Kyrie were turning sharper minds than ours to the riddle of their own existence.

Trying to shield the children, Carolina had often warned us not to talk to them about the alien biocosms and the riddle of their own origin. When they began asking questions about themselves, her first answers were evasive.

"Of course you three are different," she used to say. "You're the moon babies. Your fathers were the moon men. That's why you're all so special and so precious. You aren't like us poor dull earth people at all."

They outgrew such simple answers. The spring they were seven, Nick found Carolina's name in a child's book about "our neighbors in space." He brought it to me to ask if Dr. C. Marko was actually his mother. When I said she was, he and Kyrie demanded a tour of the exobiology lab.

Carolina reluctantly agreed, though she masked them cautiously against infection by some alien organism. Kyrie clung close to me, frightened into silence by the strange smells and machines. Nick was eagerly excited, shouting breathless questions through the gauze.

Huge-eyed, he peered at flasks of cultured beta-life. He squinted and prodded at a coiled iridium nugget from Mercury. He blinked at projected films of the snake-shaped creatures that had come out to circle Jupiter Station.

As we were about to leave, sudden bells jangled. Automatic doors thudded shut, sealing the hall ahead of us. A blinding violet glare flooded the glass-walled corridors around the incubators.

"Uncle Kim!" Kyrie gripped my hand. "What's this?"

I was unnerved, but Carolina seemed delighted.

"Don't fret." She gathered both children in her arms. "It's just the beta-life. Sometimes it changes shape, you see. Like tadpoles changing into frogs or grubs into butterflies."

She turned more gravely to me.

"We've been observing this for several months, though we don't yet have data for a formal report. The cultures bubble along for generation after generation in single-cell form. But now and then something happens. The cells combine into an amazing metamorph."

"Let's have a look."

She made us wait while she got into a plastic gown and went back through double doors into the in-

cubator block to bring a stoppered flask to the glass barrier where we could see it. The children gasped and stared.

The milky fluid in the bottle had become a big scarlet bubble, oddly spotted with gold and black, fringed with silky silver tendrils. With an uneven rhythm it expanded against the walls of the flask and contracted again, as if trying to breathe.

"Poor creature!" Kyrie whispered. "It wants out."

CAROLINA set the flask on a stand. We stood there half the afternoon, watching the imprisoned thing while she made notes and photographs. Vigorous at first, its breathing movements became irregular and slow.

"That bottle's choking it." Kyrie looked accusingly at Carolina. "Can't you set it free?"

"Our breath would kill it." Carolina patted Kyrie's golden shoulder, soothingly. "We'd all like to help, but it can't live in our biocosm."

We saw it die. Its last fluttering movements ceased. Its vivid colors faded into leaden grays. The bubble burst and shrank, its fragile membranes dissolving into a few drops of brown liquid mud.

Its odor reached us when Carolina opened the doors, a thin, revolting sweetness a little like rotten eggs. I wanted to leave, but Nick and Kyrie had questions to ask.

"We're getting two or three such changes a week," Carolina told us. "Each metamorph has a different color and shape. They're all trying to escape—that's why we've installed the sensors and the automatic doors. None has gotten away—or lived more than two hours. Really, we don't know much about them yet.

We followed her to her office and waited while she put away her notebooks and cameras. Kyrie nestled uneasily against my knees, as if frightened by what we had seen. Equally troubled, Nick kept asking questions.

"Mother, what are we? Why do you keep us here—in our own special lab? Why do you watch us all the time? Are we specimens too? Like the meta—" He tried again, careful with the word. "Like the metamorphs?"

"Don't you worry, dear." She tried to hug him. "You're our children. We love you very much."

"But we are different." He slipped out of her arms and backed uncertainly away. "You do observe us. You film us and tape us and test us. You keep records and file reports, just like you do for those funny bugs in your bottles."

I felt Kyrie shiver.

"Why?" Nick shrilled. "What kind of thing are we?"

"You're people," Carolina said.

"But unique people. That's why you're so priceless to science. As well as to us."

"What makes us—unique?"

"Something happened to your fathers out in space." Carolina's eyes were big and black as his, imploring him to understand. "They were the crew of a seeker survey craft exploring the moon. They found a bed of strange black grit splashed around an impact crater. Some force from that grit caught them and changed them—changed the genes of their sperm cells—so that you are their children."

"But they aren't exactly our fathers? We are not exactly human?"

"Not entirely human." Nodding reluctantly, Carolina caught her breath and tried to smile.

"Who made the grit?" Nick demanded. "Who put it on the moon?"

"Nobody knows," Carolina said. "Though Yuri has a theory."

NICK dragged her off at once to look for Marko. Kyrie tugged me after them, her tiny hand trembling in mine. Nick pushed into Marko's office in the nursery without waiting to knock. Coffee was brewing on his desk, bubbling fragrantly through a device of his own invention, a complex hookup of glass tubes and stopper flasks. With a genial nod he offered to share it.

"Father—" Something briefly checked Nick's high voice. "Yuri, we've seen a metamorph. My mother has been telling us about the moon grit and how it made us what we are. I want to see the grit and I want to hear your theory."

Marko turned off his coffee apparatus.

"The joint research committee keeps the grit in a vault." He blinked gravely at Nick. "What's left of it. Half of what we had was used up in experimental study over the years and spies were stealing the rest."

"How do you open the vault?"

"I petition the joint committee." Marko smiled a little at Nick's determination. "But here's a model of one grit crystal, magnified a hundred times."

The model was a shining black pyramid, two feet tall. It stood on a metal pedestal. Marko swung a slice of it out on hinges, to show its inner blackness intricately patterned with shining lines of gold and glass.

"The black mass is a granular allotrope of carbon, elsewhere unknown," he explained. "Seeded with microscopic thorium beads. Latticed in a very intricate way with those wafers of silicon and gold. Mixed with trace amounts of other elements."

Kyrie shrank back beside me, but Nick listened eagerly. "Your theory, Yuri?"

"The crystals were made somewhere," Marko said. "But not, I think, on any planet we've found. The splash pattern around the crater shows an impact from the south—the direction of our nearest star. I think the crystals were manufactured and shot to the moon by an unknown technology far ahead of us."

I felt Kyrie quiver.

"By the starfolk?" she whispered. "Our own far people?"

"That was just a baby game." Nick glanced at her reprovingly. "We made up the starfolk," he told Marko. "But we didn't know about the grit. What could it be for?"

"Maybe there is an interstellar culture." Marko smiled soberly at Kyrie. "Maybe it is spreading across the galaxy, from star to star. Maybe the grit was contained in a messenger missile, shot from Alpha Centauri to make contact with us."

"Why the grit?" Nick peered at the black pyramid. "Why not a ship?"

"I've wondered for years," Marko said. "At least I think I see why. I think intelligent worlds are too rare and too far for ships to find them all. I think the messenger missiles must have been scattered like seed across dead worlds and live ones—to be awakened by any evolving intelligence. Our seeker woke it."

"And we were born." Nick nodded slowly. "Now what are we?"

"The messengers, I imagine."

"So what is the message?" Nick looked tiny and puzzled and afraid. "What are we to do? If the grit made us, what are we *for*?"

"You'll discover that." Marko paused, with an odd look of owlish foreboding, before he added, "I think you'll find a splendid destiny."

Nick smiled hopefully, but Kyrie was still afraid.

"Uncle Yuri—" Her small voice quivered and broke. "If Nick and I are messengers from the stars—what is poor dear Guy?"

Uncomfortably Marko shook his head.

"Tell us, Uncle Yuri. Tell us what your theory is."

"The messenger missile struck the moon millions of years ago." His eyes shifted uneasily from her to the tall black pyramid. "The grit had to wait for us to find it. Too long, I think. Most of the crystals were damaged by micrometeorites. If they are fission-powered solid-state devices—as I think they are—most of them are now defective." He looked unhappily back at her. "I'm afraid their defects appear in Guy."

"No!" Her voice turned sharp with pain. "You've got to be wrong, Uncle Yuri. Poor Guy is not defective. We love him exactly as he is."

NICK clamored to see the actual moon grit until Marko filed a requisition. The joint research committee took three days to approve it, but then a security squad brought six crystals to the nursery, along with a receipt for Marko to sign.

All three children came to watch him pour the black grit from the test tube to a table top. Guy cried out when he saw the shining bits. More alive than I had ever seen him, he snatched at them and darted away with one clutched in each gray fist.

"They're for Nick." Marko looked at me. "Get them back."

Guy dropped to the floor when I reached him. He was moaning and quivering either in ecstasy or pain. His eyes rolled blindly upward and his barnyard scent rose rank around me. His hoarse breathing slowed and ceased. He was suddenly asleep, all his body limp except the knotted fists.

"Let him keep them," Kyrie begged. "He needs them so."

Marko agreed and distributed the others to her and Nick. Their rapt delight almost equaled Guy's. Kyrie cradled the tiny tetrahedrons in her cupped hands, crooning plaintive little sounds I had never heard her make. Her palms and her bent face grew golden, as if tanned by some unseen radiation.

Nick was examining his own crystals with an air of alert intelligence, weighing them in his hand, listening to their ring when he tapped them with a fingernail, searching their bright triangles with a pocket lens. His skin was turning dark.

"They are nexodes." She glanced delightedly at him. "Real nexodes!"

"What's that?" Marko started. "What's a nexode?"

"Something we made up." Nick shrugged. "In a game we used to play."

"What game?" Marko swung urgently to Kyrie. "Please tell me."

"You saw it." Her voice was faint and absent, her eyes still fixed on the glittering crystals. "We were spacefolk, remember? Marooned and waiting for our people to come."

Marko nodded. "But I hadn't heard of any—nexodes."

"It looked like this." She showed the tiny tetrahedron on her small brown palm. "Only bigger—and bright with lovely light. A precious, precious thing. We used it to locate our people among the stars. And then to help their ship find us."

"How did you come to think of such a thing?"

She turned uncertainly to Nick.

"Just made it up." Scorn tinged his voice. "Baby stuff. Please, let's not bother about it now."

He bent again, methodically testing each face of one pyramid against each face of the other, as if he expected them to stick together. When they did not he produced a pocket magnet to try them with.

THAT night, in Carolina's lab, we had a long discussion of those games and the grit. Marko argued for some unknown sort of cognition or memory expressed in the games. For evidence he brought up those unexplained hallucinations that captured the seeker crew on the moon.

"The space terminal I thought I saw was too much like Nick's toy terminal," he insisted. "It can't be just coincidental. Through some medium too subtle for us, the grit communicates ideas."

"But your terminal on the moon wasn't really there," Carolina objected. "No more than Thorsen's spacefort or Hood's gold meteor. The grit has been tested very elaborately for psionic effects, with negative results."

"Then how do you explain the game?"

"Nick says he made it up. Perhaps he did. Other gifted children have invented remarkable imaginary worlds. The Brontes, for instance. Nobody claims theirs was real."

We talked on, reviewing all our data and a hundred published theories until my head throbbed from the blue glow of the sterile walls and the musty scent of the bubbling beta cultures, but we came to no conclusions.

"Let's not fret about it," Carolina said, as we were leaving. "The grit shaped the children. Its meaning is for them, not for us. If it can help them find themselves, our real obligation is only to keep ourselves out of the way."

Next day Marko tried again to question Nick and Kyrie. Still awake and still elated with the black grit, they seemed to understand it no better than we did. Asked about the games, Kyrie confessed a wistful half-belief that she and Nick and Guy were actual spacefolk, but Nick glibly quoted sources in books and films to prove that he had borrowed everything.

Carolina had seated them on the edge of Marko's desk to bring them closer to our level. Kyrie kept eyeing her precious sample of the grit, reluctant to think of anything else. Nick sat impatiently drumming the front of the desk with his bare heels.

"We aren't bugs!" His bored annoyance flashed into abrupt resentment. "You can't cut us up to see what makes us tick—like the seeker crews want to butcher the space snakes they're hunting out around Jupiter. Why can't you leave us alone?"

"Nicky!" Kyrie caught his brown arm. "Don't!"

But Carolina nodded soberly.

"To a lot of people you are specimens, fascinating exobiological specimens. We hope to protect you from such cruel people until you learn why you were born. Trust us, please."

"Of course we trust you," Kyrie whispered. "Don't we, Nick?"

His grin was almost sardonic. "We have to trust you."

"One more thing," Marko said. "In those games, what was Guy?"

The teasing malice died from Nick's black eyes. He frowned as if he meant to speak, shook his head, finally turned unhappily to Kyrie. Her golden face lost color as she raised it from the bits of grit, until she looked pale and almost piteous.

"That's the bad part." We had to lean to catch her stricken whisper. "Because Guy never liked the games. He didn't want to play. He said he was no kin to the spacefolk and he didn't want their ship to come and carry us away. He wouldn't help us build the tachyon terminal. Once he kicked it and scattered all the blocks."

"Is that so bad?"

Her big eyes were a tragic black and tears glittered on her cheeks. She glanced anxiously at Nick. He made a face and shoved her shoulder as if to remind her that it was all a game, but the gestures failed to break her gloom.

"The bad part was more what I thought," she quavered miserably. "I thought Guy wouldn't play because he loved me and hated Nick. I thought he was afraid the spacefolk would take us both away and leave him all alone. I was terribly afraid—afraid he might hurt Nick."

"Don't cry about it." Nick pushed her again. "It was all just baby play."

Kyrie turned slowly to look at him.

"But Guy really does love me," she whispered. "And he really doesn't like it when I do anything with you, Nicky. That's why I'm so afraid. Afraid!"

VIII

BAD news came from space that year. COSMOS had reached no friendly worlds and the cheerful assumption that the planets were oysters waiting to be opened was fading into fear that Earth herself might somehow become the oyster of some other biocosm.

The Pizarros of space had found no new Perus to loot. Though the flight mechanism of the Jovian delta-life had promised to be a richer treasure than all the Incan gold—or even the nugget fields of Mercury—those elusive creatures still kept their secret.

Agile as shadows, they evaded every effort to capture or even to destroy them. No ship was swift

enough to overtake them. No human weapon could reach or damage them. Nearhits with nuclear missiles left them neither hurt nor offended.

As if reciprocating human curiosity, they kept darting close to the orbital station. Companionably they escorted the seekers in flight around the planet's moons. They began flying out to meet arriving rockets. Finally they followed a returning ship all the way to the Earth platform.

Even though the delta-form beings had never tried to take any human specimens the news of that visit spread consternation. To head off panic we released a theory of Carolina's that the Jovians had been to Earth before.

"They're at home in space," she said. "The evidence suggests that they can tolerate dry air at high elevations, at least for brief periods. They seem to look somewhat like the flying serpents of native Mexican art and to move like certain UFOs."

To support the theory she showed us the data that had come to her lab for analysis. Taken from the orbital station, one photograph had caught a snake-shaped thing in silhouette against the brightly streaked face of Jupiter.

The thick serpentine form was darkly transparent, a twisted shadow across the great Red Spot. It had an opaque nucleus—a dark jagged mass like an irregular crystal. From that mass spread two wide luminous rays or plumes, which to some primitive Aztec might have looked like wings.

"Everything suggests they've been making casual calls for centuries," Carolina said. "Without hurting anybody. I doubt that they can metabolize the products of our biocosm. Except for short visits to the highest, dryest mountains, Earth is not for them."

"Then why," I asked, "would they be interested in us?"

Her faint smile looked wry. "Perhaps because we're interested in them."

The news from Mercury was more disturbing. Computer analysis of the tapes from the seeker survey had revealed no life or motion on the surface of that hot planet. Now the COSMOS command on the orbital platform sent a landing group to test a notion that the tunnel diggers were either dead or departed. The notion turned out to be unfortunate.

The group reported a safe landing at their selected site on the rugged highlands, near the tunnel cluster they were to investigate. As the orbital platform moved out of contact, they had just begun blasting, to level the site and excavate a shelter tunnel of their own.

Two hours later, with contact restored, they reported evidence that Mercury was still alive. During a pause in the blasting, their seismographs had picked up a series of rhythmic tremors from the direction of the tunnel cluster.

By the time the platform came overhead, some kind of smoke or vapor was pouring out of the tunnels. It rapidly obscured the sixty-mile plain and began to spill over.

Because of the small planet's close horizons, this cloud was not yet visible to the surface group, but the platform commander ordered it to halt drilling and to prepare for take-off. What happened next was never discovered.

A narrow tongue of that bright fog was pushing toward the landing site as the platform moved out of range again. The commander tried to order an immediate take-off, but laser contact was already broken. The landing group was gone when the platform came back over the site and the last wisps of fog were disappearing from the crater basin, draining like a liquid back into the tunnels.

The commander decided not to risk another surface expedition, but photographs of the site showed a few small scattered scraps of wreckage, indicating that the landing craft had crashed or exploded soon after takeoff. The bodies of the men, along with most of the wreckage, had been somehow removed.

RELAYED to the COSMOS directorate at Skygate, the reports of that incident set off a new debate. One fraction wanted to withdraw all missions from Mercury. Another wanted to bombard the tunnels with nuclear missiles. As a compromise, orders were relayed for the platform commander to climb into a higher orbit and prepare to defend himself. What proved to be the last transmission from the platform had already been received. It was a routine signal that communication would be blacked out again while the platform passed behind the planet. Nothing else came through.

After another hot debate, the directorate canceled plans to send a rescue expedition. The exploration of Mercury ceased, the nature of the tunnel-diggers still unknown.

In the wake of this disquieting disaster, COSMOS budgets were slashed again. The uncompleted orbital stations around Saturn and Neptune had to be abandoned and plans were canceled for a series of transplutonian probes.

At Skygate our difficulties multiplied. In spite of all our publicity efforts, people tended to identify the children with the enigmatic beings of those other

biocosms. We ourselves were suspect. The security force received secret orders, as we later discovered, to watch us as well as our charges.

Nick was begging for permission to study a larger sample of the moon grit, but the joint research committee disapproved Marko's requisition for it. Some members doubted that a child could accomplish anything significant. Others feared that Nick might do too much.

Waiting fretfully, he spent most of his time in his mother's laboratory. He learned to culture the beta-life. He skimmed through all her reference books and her filed data on the other biocosms. He studied new closeups of the Jovian delta-forms, made from the Earth platform.

One of those photographs had caught the snake-shape of a delta creature in outline against the cloud-swirled Earth. With sharper eyes or perhaps a sharper mind than anybody else, Nick discovered a puzzling structure of fine black lines that branched from the jagged nuclear crystal out into the serpentine shadow.

He spent two days mapping those barely visible lines, recording each with a microscopic exactness. For another sleepless night he sat cross-legged on the nursery floor, scarcely moving, "just thinking." Finally he approached his mother with a question.

"Do the COSMOS people still want to know how the delta things propel themselves?"

Carolina said they did.

"I'll show them," he promised. "In return for freedom to study the moon grit."

She took that innocent offer to Marko. He carried it to the joint research committee. They referred it to the directorate. Nick slept while he waited, but woke instantly when Marko came back to accept his proposition.

WE ARRANGED the demonstration that same afternoon. Two engineers came from the research committee to observe it. They were not impressed with his preparations.

Clever enough with tools, Nick cut a round hole the size of a beer can in the center of a short pine board. He hammered a worn silver dime into a slot near one end of the board and a copper cent into a slot near the other.

Marko and Carolina came along for the demonstration. Two security cars carried us out on the open mesa, a mile beyond the spaceport. I still recall the sardonic impatience of the engineers as they watched Nick completing his device.

A thin, grave-eyed child, he looked too small for his seven years. His naked skin had been

pale in the car—out here the hot sun washed him with instant bronze. Squatting in the dust, he carefully fitted a can of warm beer into the hole in the board. With a soft graphite pencil he began to draw an intricate system of lines that branched from the two coins toward the can.

His task took time. Less impervious than he was to heat, we watched and sweated. I had brought no hat and my head began to throb. The engineers scowled impatiently through dark glasses. A security man snickered when Nick broke his pencil point.

Ignoring everything, Nick chewed his tongue and drew more lines until something happened. Though the gray horizon still shimmered all around us, I felt a sudden piercing chill. My mouth had a sharp metallic taste. Nick dropped his pencil and held his device up triumphantly.

"Watch!" he shrilled. "Watch it fly!"

White frost filmed and feathered the beer can. It burst with a muffled thump and brown ice jutted out. A strange, edgeless dimness spread around the ice, veined with fine black lines that seemed to branch from Nick's pencil marks. Through that spreading darkness I saw the board tugging upward. Nick clung to it, pale with alarm. Flakes of frost swirled and crackled around him in that condensing shadow. Clinging to the ends of the board, Nick was lifted off the ground.

Carolina screamed. Nick let go. The board whistled out of sight. The sun blazed back, its heat strangely welcome. The sky rumbled for endless seconds. Silence came like a thunder clap. A dazed security man stood pointing at a puff of yellow dust on the hot horizon. I tasted that puzzling bitterness still in my mouth.

Nick gathered himself out of the dust and the shivering engineers herded us into the cars. We jolted two miles across the mesa, to a shallow crater where the device had come down in a juniper clump. The engineers picked up a few pine splinters and a shred of twisted aluminum. Finally they began asking what the gadget was.

"A sort of circuit," Nick said. "It picks up certain forms of energy. From light or heat or even gravitation. It changes them to kinetic energy." While the engineers muttered and stared he added innocently: "The effect was stronger than I wanted. The broken pencil made the primary conductor marks too thick."

The whole affair left the engineers frustrated and, I think, apprehensive. They failed to translate Nick's description of the propulsion circuit or his drawings of the structured shadow-shapes of the delta crea-

tures into any terms they could understand. Their own copies of his device failed to fly.

Their reports, however, must have impressed the directors. The research committee approved a requisition. An armored security truck brought Nick half a kilogram of the precious grit in a thick canister of yellow-painted lead.

NICK eagerly attacked the tetrahedrons. He now had access to the big computer and searched its data banks for every recorded fact about the grit. He repeated old experiments and invented new ones. Most of them failed. As weeks and months went by, his confidence shrank to grim desperation.

Searching for help, he had us bring a series of scholars to Skygate. The first was Dr. Platon Papanek, an old colleague of Carolina's, recently back from Uranus. Nick bombarded him with anxious questions about the possibilities of intelligence in other biocosms.

"What's intelligence?" Still used to low gravity, Papanek shuffled laboriously to a chair and wheezed a garbled mixture of French and Czech that Nick translated for the rest of us. "A tool for survival. A sharper fang, a quicker claw. Each biocosm plays the survival game according to rules of its own. The successful adaptations—the beta and delta and gamma spheres—can't be compared on our alpha scale. You don't measure poetry by the pound or wisdom by the yard."

"Is survival all?" Nick's thin face turned bleak. "I mean, sir, couldn't intelligence become a bridge? Couldn't it build a way for one biocosm to reach and understand and maybe help another?"

"I was once an idealist." Papanek shook his flaccid bulk and gasped for his breath. "I've been to five biocosms to look for cosmic altruism. I detected none. I conclude that benevolence is a negative factor for survival."

"Somewhere else?" Urgency quivered in Nick's voice. "Somewhere in the galaxy—couldn't universal friendship become a positive factor?"

"Who knows?" The heavy gravity of Earth damped Papanek's Slavic shrug. "The farther out we go, the queerer things we find."

He stayed three days. Listening to the questions Nick and Kyrie asked, I felt a sharper sense of the urgency of their desperate search for the makers of the moon grit, but I'm afraid they got no help from Papanek.

Nick sent next for an exiled Sino-Soviet geneticist, who turned out to be as ignorant as we were about what the grit could have done to the sperm cells of the seek-

er's crew. He called in a professor of astronautics who cheerfully promised that intelligible signals could be sent to other stars within only two or three centuries if space technology continued to advance. He invited a team of solid-state physicists, who disagreed scornfully with all his theories about the structure and the function of the grit.

His last quest was a mathematician, a big jovial Finn. They spent two days and nights in the nursery classroom, trading symbols in a haze of chalk-dust. The Finn came out coffee-logged and reeling with fatigue.

"Was I expected to instruct that infant?" He blinked at me in red-eyed wonder. "In thirty minutes he destroyed the work of my life—my model of the universe. I never met such power of mind. Yet I pity him." The Finn rubbed in a dazed way at his chalky jaw. "He doesn't know how to laugh."

NICK refused to send for anybody else. His feverish bouts of study and experiment almost ceased. He used to sit for hours in despondent thought or slip away from security to roam the moonlit mesa alone. Though he and Kyrie had always been immune to germs and viruses, Carolina thought he was falling ill of sheer frustration.

"Goodness, child, don't fret so hard," I heard her urge him one morning in the nursery kitchen. "You'll only kill yourself. No doubt you and Kyrie have tremendous things to do, but they had better wait till you are older."

"We can't wait." He pushed his untouched breakfast tray aside and stared at her from blue-rimmed eyes. "All the planets are on fire with danger for us. Earth worst of all. Our only hope is the message I think is in the grit, but time is running out for us to break the code. Mother, I'm afraid—" His faint voice cracked. "I'm afraid we'll die before we ever learn why we were born."

Such black moods distressed us all, but Nick was hard to help. Even when his problems proved impossible to solve, he would not forget them. He saw through the good news we tried to manufacture and indignantly rejected most attempts to encourage or distract him. That year was difficult, though Guy and Kyrie brought us occasional relief from his gloomy moodiness.

Guy was heavier than I by now and nearly as tall. Awake, he had the unpredictable vigor of a yearling grizzly and an appalling appearance. Though he enjoyed clothing no more than did Nick and Kyrie, he had reluctantly begun to hide his shaggy strangeness under a shapeless old raincoat

when he was outside the nursery.

Carolina still worked when she could to train and study his sluggish intelligence. Sometimes she got him to fumble clumsily with a teaching device or an educational toy. More often he simply sprawled or squatted wherever he was, waiting dumbly for Kyrie. Nick's desperate plight did not exist for him.

Kyrie was desperately concerned, but Nick seemed not to want her with him in the lab or on his solitary walks. Trying to learn enough to understand his problems with the grit, she got Carolina to bring in a series of tutors for her.

Carolina helped her choose an international team of genetic specialists and she begged them to tell her why Nick and Guy were so different. Those experts took new case histories of all three children, scowled at the grit and muttered vaguely about anomalous genetic mutations.

Searching as urgently as Nick for any sort of understanding, she called in a group of noted composers, who turned out to like or understand her music no better than I did. She sent for philosophers and anthropologists, a female psychologist, finally a Chilean poet.

SHE liked the poet best. A sun-dried gnome with lank black hair and black child-eyes, he beat a many-stringed guitar to a whining chant about his own Homeric life. A one-time spaceman, he had ridden seekers around a dozen moons and asteroids, yet never discovered the meaning of life. Kyrie must have seen Nick and herself in his sad songs. When he was gone, she wouldn't send for anybody else.

"The wisest men aren't wise enough," she told Carolina. "They can't help Nick. They can't tell us what we were born for. They can't explain why Guy is like he is." she sighed. "Really, you know—in spite of you and Uncle Yuri and Uncle Kim—the three of us are all alone."

Unable to do anything for Nick, she turned to Guy. His slow being quickened eagerly when she came near and she seemed not to mind his backward strangeness. For months they were always together. They talked little—words, she said, were still too hard for Guy. But she used to sit crooning beside him while he slept and, awake, he used to whimper for her music.

Music—an odd word for the throbs and moans and howls that she beat and scraped and blew out of unlikely bits of junk—or even for the wailing songs she sang. Those tormented sounds were never melodious to the rest of us—rather, they were disturbing

in a way I could never understand. But they set Guy to writhing and whining with an animal delight.

Uncontrolled, his gorilla strength had become a problem for security. When he learned to like working out in the gym, he broke equipment and threw balls too hard and fractured the jaw of a guard who was trying to teach him to box. The security chief was afraid he might hurt Kyrie.

She laughed at the notion of danger from her baby Guy, but Carolina, observing their sex development, began to take it seriously. Kyrie, too, had outgrown Nick. Still child-slight, her figure had matured distractingly. Carolina warned and cajoled and ordered her to wear at least bikinis. She obeyed now and then.

Though Nick had never given up his quest for the secret of the grit, it was Guy who made the breakthrough. It happened on a blazing summer afternoon. I was sitting in the publicity office, staring through the window at blue mirages on the mesa and not dictating my daily security report, when Kyrie burst in, screaming.

"It's the messenger stuff!" She was so breathless I failed to get the words at first. "Uncle Kim, the messenger stuff! Guy wants to show you. He's learned what to do with the messenger stuff."

I followed her back to a playroom in the nursery. We found Nick and Guy huddled over a child-sized desk. Nick sat on a chair, naked and alert and deep brown. Too big for the furniture, Guy was crouching over the desk, doing something with a handful of the tiny tetrahedrons.

I heard her say, "Guy knows how—"

"Shhh!" Guy hushed her, and we stooped to watch.

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THE grit was spread out on a sheet of white paper. Moving with a deftness that surprised me, Guy's stubby, short-furred fingers were pushing three tiny pyramids into a triangular pattern. Squinting with care, a new yellow gleam in his eyes, he lowered the base of a fourth pyramid upon the upright points to complete a taller tetrahedron.

When that last crystal clicked into place, a soft blue glow lit the larger pyramid, brightest in its hollow center. Guy raised his browless head with a thick grunt of satisfaction and Nick snatched the thing he had made.

"We've got it, Ky!" His voice turned shrill as hers. "He can stick them together. In fours, like this. And the fours into fours of fours, the way they were meant to go. He's making our nexode—"

A savage growl unnerved me. In a blur of action, the little desk was

splintered, black grit scattered, Nick flung to the floor. Kyrie bent over him, gasping and voiceless with terror. Guy lurched away, clutching that glowing thing against his belly fur.

Two security men burst in, shouting at him. He lumbered toward their drawn pistols until I called his name. He stopped then, mute and trembling. With Kyrie's aid, I managed to make peace. The guards put up their guns and helped gather the spilled grit. Nick said he hadn't meant to be rude and begged Guy to go ahead and finish the nexode.

Guy shook his head at first and clung moaning to the blue pyramid, but Nick brought the rest of the grit from the lab and Kryie coaxed him back to work. He was at it all that night, painstakingly clicking the crystals into fours and these into taller and taller steps, sixteens and sixty-fours. Each larger pyramid glowed with another color, strong at first but slowly fading, the sixteens greenish and the sixty-fours a tawny topaz.

Nick and Kyrie tried eagerly to help, but the art was Guy's alone. Though the undamaged tetrahedrons had always looked identical to everybody else, he selected each for its own place, turning and trying it as if to make some kind of invisible fit. He didn't explain what he was doing and the black bits refused to stick together for the rest of us.

Guy changed as he worked—in ways that are hard to explain. He visibly shed his fumbling clumsiness. He looked more alive and happier than I had seen him. His fur seemed to shine with a sleeker luster. His ungainly frame grew straighter—after midnight, he moved everything to the top of a filing cabinet, so that he could stand at his task.

His brain was awakening, too, in ways less visible to me. I saw Kyrie watching the growing pyramids and Guy himself with a breathless fixity. Turning abruptly away, she wanted Nick and me to come with her to the kitchen for a snack.

We walked off slowly.

"It's doing things to Guy," she whispered, with an awed backward glance. "I don't know how to say it, but I keep feeling what he feels. When he touches the grit, I feel with his fingers."

Nick looked blank.

"The slick cool blocks." Kyrie's golden fingers stroked and lifted an invisible pyramid. "The edges like black blades. The pattern of the faces—all threes of threes. I caught other feelings, too."

Her amused eyes flashed at me.

"He's really fond of you, Uncle Kim. He thinks you're more like him than anybody else is. Not too smart."

"Ky!" Nick was startled. "How does he feel about me?"

HER brief smile went out. She sat down in a kitchen chair too big for her, suddenly forlorn. I brought her a glass of yeastract plus, but she didn't want it.

"He loves me," she breathed at last. "I never knew how much. But not you. Not you, Nick."

"It's nothing we can help." Nick stood behind the chair, his brown hand just touching her golden shoulder, his voice quietly matter-of-fact. "There's one of you for two of us."

"How can you hate—" Pain stifled her. "How can you hurt each other when I love you both?"

"I'll never harm Guy." His promise had a quiet finality that made him seem strangely mature. "I couldn't injure him, Ky. Not even for you."

Cheered by that assurance she decided that she was hungry after all. I left them at the table and carried a sandwich back to Guy. Busy with a new blue pyramid, he greeted me with a friendly grin but took no time to eat.

He finished the fourth topaz tetrahedron before dawn. Exhaustion had drained his new vitality by then. His gray paws were awkward and uncertain again, but he turned and tried his new pyramid above the other three until at last it snapped gently into place.

"Guy, Guy!" Kyrie gasped. "It's so very lovely!"

This final tetrahedron was four inches tall. A cool, rose-colored glow shimmered along its knife-like edges and filled its interior hollow, but lingering gleams of yellow and green and blue clung to the smaller triangles that made up its faces, filming all its intricately patterned blackness with a splendid flowing glow.

Nick was squinting at it critically.

"I don't think it's done," he said. "You could make it twice as tall. There's grit left over and we can requisition more."

"I used all the good ones." Guy shrugged disdainfully at the handful of crystals scattered on the filing cabinet. "These went bad. See?" Though the crystals had been nearly diamond-hard, his pinching fingers crumbled two or three of those left over into soft black dust. "Burned out."

"May I, Guy?" Kyrie reached eagerly toward the bright pyramid. "May I just touch—"

"Please keep it for me." With a grace that astonished me, Guy set it in her quivering hands. "I'm dead—for—sleep."

His voice slowed and his body stooped and his yellow eyes grew dull, as he gave up the pyramid. He stood gaping vacantly at

Kyrie. Like some trained animal, I thought, waiting dully for its next command.

"Thank you, Guy." Captured by the pyramid, she scarcely looked at him. "Go on to bed."

He shambled heavily away, already half-asleep. Turning to Kyrie, I was enchanted by the transformation flowing over her like some magic fluid from the rosy tetrahedron. She looked taller, rounder of buttock and bust. Her startled smile of sheer delight was quickly veiled with Mona Lisa's mystery. Somehow the thin and wistful child had been clad in instant womanhood.

What I felt was a stab of desire so sharp I turned away. When I dared to look back her golden gaze was on me, wise as Aphrodite's, aware of all I felt, her mocking amusement at my disquiet mixed with a silent pride in her newly gained power to kindle it. For one astonished moment I met her candid eyes, inhaling a wave of her lilac scent. Then she forgot me, peering again into that blazing pyramid.

"Nicky, this is better than the game," she whispered eagerly. "It's our nexode—real! The record our people in the stars made for us. It will tell us who we are and what our lives are for—and maybe how to find our way to them."

TO BE CONTINUED

CLARION/TULANE WORKSHOP

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For six weeks this summer, beginning June 12, Tulane University in New Orleans will sponsor an intensive science fiction writing workshop, continuing the Clarion SF workshop founded and conducted over the past four years by Robin Scott Wilson.

The Tulane Workshop will be directed by James Sallis, former editor of *New Worlds*, whose work has appeared in the *Galaxy* publications, *Orbit*, *Quark* and numerous anthologies. Macmillan has just brought out a collection of his short stories, *A Few Last Words*.

The Workshop devotes three to four hours each morning to lectures and group criticism, the rest of the day to writing and consultation. Guest lecturers include Mr. Wilson, Samuel R. Delany, Harlan Ellison, Damon Knight, Kate Wilhelm.

Tuition, including housing, is $250 and college credit is given (three semester hours). For information and/or application, address:

James Sallis, Tulane SF Writing Workshop
Department of English (Arts and Sciences)
Tulane University
New Orleans, La. 70118



ALL BUT THE WORDS

It was hard to communicate with Albert—but even harder not to!

R.A. LAFFERTY

THE IDT Project had been going on for a dozen years with no real advance toward its ends. It would have been abandoned long before except for its collateral discoveries in other fields. The accidental offshoots it had produced were well worth the considerable expense of the Project.

The Project had assigned to it one great mind and several very good minds; no other project at that time could say as much. The great mind was that of Gregory Smirnov, and his greatness was in his instant perception of the possibilities of an idea. He always knew whether an idea or a notion had a spark in it. He discerned where the flightiest apparent idiocy carried the ultimate spark and where the most brilliant and most

plausible thesis did not. He played his colleagues like a hand of cards and scored every possible point.

The several very good minds associated with the Project were those of: Charles Cogsworth, the inventor of the Recapitulation Correlator, as well as the Cerebral Scanner; Aloysius Shiplap who had been associated with the late Cecil Corn in the experiment which ended with Corn's life—which may have been a dead end and may have been an opening door; the stiff-necked Garald Glasser, the designer of the E.P. Locator; Valery Mok, a woman of vivid eido-creation whose mind had put Cogsworth into a state of shock when first he went into it with his scanner.

Also associated with the Project was Energine Eimer. Although she had a good mind by ordinary standards she was not in the class with the others; for it was really an understatement to speak of them as having very good minds. Energine herself was flighty to seeming idiocy, but Smirnov had detected that from her might come the ultimate spark.

The purpose of the IDT Project was to devise an Instant Distant Translation device, which might be either mechanical or psychic, or something of an entirely different aspect. It was to reach and establish rapport with a distant—a very distant—mind, any mind anywhere beyond the pale. It would have to combine and go far beyond such tools as were already available.

Extrasensory Perception, now that it was known to be but another aspect of simple sensory perception and of disappointing limitations, was one very inadequate tool. The translation devices themselves would be enough for ordinary work. They could now interpret roughly the thought processes of earthworms and ferns and even crystals. They could record and even verbalize the apprehensions of metals under stress and, to an extent, the group consciousness of gathering thunderheads. Any language, terrestrial or distant, could be given a cogent interpretation. But something more was required.

IT WAS the six hundred and twelfth weekly progress meeting of the group.

"Energine," said Gregory Smirnov, "it has just come to me how you are different from the rest of us."

"In one way she's different from the rest except myself," said Valery, "but I'm not sure that you've ever noticed that difference."

"I've known about the difference between the sexes for a long time, Valery," said Smirnov. "I was a precocious child and an early reader of biology. In my own life I have relegated the implications of the difference to a minor corner. There is little enough time in even a long life to do the work I have set for myself, and the ramifications of the sex complex are time consuming. No, the difference is that Energine likes to talk to people."

"Does not almost everyone?" asked Shiplap.

"Many do, but none of us on the Project except Energine," said Smirnov. "We are not the sort who like people, and we talk to them as little as possible. Mostly we talk to ourselves even when we are nominally talking to others. There is an inhibition in the—ah—cultivated minds. We are a withdrawn bunch and we tend to become more so as we follow our specialties and our studies. That is the irony of it."

"Where is the irony?" asked Cogsworth.

"We are trying to talk to 'people' over cosmic distances and we do not even like to talk to people near at hand. We do not like to talk to people at all. We aren't the ones for the job. Mostly we are bored with people."

"Then who are the ones for the job?" asked Glasser. "Logorrhea is rampant in the world. We could find a billion low folks who love to talk to other low folks."

"Possibly those we will ultimately contact will also be low folks," said Smirnov. "It is likely that the lowest common denominator of the Universe will be both low and common. Rapport is what we want and we don't have it. We can study the dragonfly, but are we ever really concerned with the dragonfly's concern for his family? We don't really like the monstrous miniatures. We've no sympathy with the terrified arrogance of the arachnid; how can we have sympathy for really *strange* creatures? How can we talk to an alien if we don't even like to talk to our own kind?"

"I have a landlady who even talks to bugs," said Glasser. "Shall I get her? She'd droodle to a vole on a planet just as well if we pointed her that way. And you believe that she would be better than ourselves, who have all the techniques and information?"

"We have Energine," said Smirnov. "She has the techniques, such as we all have. And she likes to talk to people. She might just be able to break us out of our restriction."

"Then why hasn't she done it?" asked Valery. "She's had as much time on the senders and scanners as any of us have had—and no more luck."

"Because she hasn't let herself go. She has been constrained to use our own approach and formulas. Energine, let yourself go and talk to those people. Now. Tonight. Talk to them!"

"I will, I will. But how? You mean just like I talk? I've thought of that, but I didn't think you'd allow it. I bet those folks have gotten awful bored with our salutations and mathematical symbols. A circle is a circle, and a square is a square—and so are we. Hey—me third planet out. Who you? I bet they think we're nutty to use that kind of stuff.

"I'll get hold of one of them tonight and tell him all about the new Indonesian Restaurant I found. Maybe he found a new restaurant up there and can tell me some of the dishes. Whoever he is I bet he likes to eat, too."

"Energine, do you still belong to a Lonely Hearts Club?"

"Why, I belong to all of them! Just let me read you one letter I got this morning. Why, it's the nicest letter—"

"Spare us—protect us! Earth swallow us!" cried Glasser.

"That, Glasser, is an illustration of what is holding us back," said Smirnov. "We don't like to talk to people and we don't like to listen to people. It may be that they have been talking to us for a long time and we were not in tune to listen."

"Well then, you will surely listen, Mr. Smirnov," cried Energine. "This is a letter from Eugene, upstate—"

"No, as a matter of fact I will not listen," said Smirnov. "I am now too old to develop a sympathy for the vital things of life. But what I want you to do, Energine, is to let yourself go—to talk, to send, just as if you were writing to one of your lonely hearts people. Go all the way out, girl. If it doesn't work—only the stars will laugh at you."

"Oh, I never minded being laughed at. It shows that people are having fun. I'll tell him about Charley; that's just to make him jealous. You don't know about Charley? Let me read you—well, never mind then. This might be the first extraterrestrial lonely hearts club. I could be president."

"Yes, you could be president of it, Energine. Now, the first live blip you get on the scanner, you just let yourself go with all you've got. Send him one of those lonely hearts letters. Make it lavender."

"Purple. Oh, I will, I will."

AND that evening on the scanner Energine picked up either a minor blip or a minor malfunction; it was always impossible to tell which. Those little egg-shaped anomalies—they looked egg-shaped, they sounded egg-shaped, they broke into egg-shaped sine

curves—were the only evidence ever of the sort of target they were seeking. Energine let herself go on the sender.

"Dear Albert—since I must call you something and I am sure that your name is very like that—I will try quite hard to reach you and I beg that you answer me. Your name in the Project now becomes Albert-(Tentative). To others you are only an egg-shaped anomaly, but you are more than that to me.

"This is the first essay to the establishment of a stellar lonely hearts club and it just *has* to be a success. In the lonely hearts clubs we write in love and affection to those we would like to know, and we would like to know everyone.

"I will tell you about our world and you tell me about yours. I hope that we can get very close together. There is an ecstasy on me when I can grow very close to another. I believe that the only thing of any importance on this world is love. Is not that the only thing of importance on yours?

"I had another picture of Charley today. He is not as handsome a man as he was in the first picture that he sent. I do not believe that the first picture was even a picture of Charley. But sometimes the first picture that I send is not a picture of me either. Do you want to see a picture of me? I will send one as soon as I find out how.

"I went to a Mexican restaurant last night. They had roast kid stuffed with almonds and sauced all over with burnt brown sugar. And they had those little flat pancake things that taste like cardboard. I love them. I wonder if you enjoy eating as much as I do.

"Albert, please answer me with anything at all and we will begin to establish rapport. I feel that we could grow very close together. Albert, I will treasure your answers with those of Fred and Harold and Richard—that one turned out badly but he *did* write nice letters—and Selby and Roger and Norbert. Do you also save old letters? Answer me. I will stay right here till morning and if I do not hear from you by then I will wait again tomorrow evening and every evening. Signed—Energine."

SHE waited, but she didn't have to wait as long as she had feared. It was only about an hour till the response began to come through. The first sign of it was the dimming of the lights and the vibration of the building as the auxiliary generators cut in, for the translation device seemed to be laboring under a heavy, unaccustomed load. But the machine had amazing resources. It could translate anything, anything.

"Energine," came the answer. "That call letter? That name? That world? That people? That what?

"Jubilation here to learn that there is friendly life on your world. Your world previously ignored as little bit sick. You know sick? Word sick? Possibly first word mutually understanding.

"Comprehending all your communication except the words. What is lonely? What is hearts? What is club? What is grow very close together? What is Charley? What is picture? What is Mexican? What is kid? What is little flat pancake thing? What is cardboard? What is a Fred and Harold and other entities?

"Word love understood intuitively. Explain mechanics of thing with you. Extreme variation in different sectors. In ecstasy of symbiosis which one swallow who?

"Yes, answer, answer, answer, whatever that means. What is Selby? What is Norbert? What means wait right here? What means morning? Rapport also understood intuitively. We be so completely. We how many? You group or integer? Send how to roast kid stuffed. What is roast kid stuffed? Delirious interest here in subject, sure to increase when we know what subject consist of. Also love you already passionately. What is passionately? What is already? KGG3LP*Y#UU—Albert-(Tentative)."

HE HAD answered. Albert-(Tentative) had answered. He had understood all of her communication except the words. They were in perfect rapport.

The translation device shuddered and groaned after the effort. Then it panted softly and fell to sibilant silence. The building was quiet and the night gathered lovely about it.

THE first and most difficult step of the IDT Project had been achieved after twelve years. The rest would follow. Others would venture where Energine had pioneered. The glad news of the achievement was given to the world.

The matter and exact wording of the two messages were not, however, given to the world. These remained classified. In the early contacts with aliens there are always details which will seem incongruous to the unlearned.

Others tried the feat with some success and Energine repeated it again and again. The rapport grew. Soon Albert Tentative began to understand some of the words as well as the feeling of the messages. Small misunderstandings were gradually set right, as one from Albert—

"You ask if we can be sure that we are of opposite sex? How not opposite? With us are five sexes. Everybody partake of several, so everybody a little opposite. This make for clarity. Surely you

drollery when you say there only two on your world.

"You wish to see me but say it is impossibly. Why in kss@#rr*WQ [mild profanity.—Trans. note] it not possible? Travel no problem with us. It problem with you? You want me—I be there. Like in little verse we find in Block Massive Cultural Transmission Corpus from your world, 'Brush your tooth, say your prayer, go to sleep, I be there.' What brush? What tooth? What prayer? What Sleep? What it mean, understanding that great poetry not always to be taken literally. Profound poetry from your world having great appeal here. Also Aristotle Joke Book and fragments of Sport Page Statistic Epic Cycle. Decline in your civilization huh? No four-hundred hitters for years.

"Who I see buy stock on exchange? Always looking for sound investment. All difficulties erased when we see each other. Albert Tentative."

"HE IS coming to see me," said Energine dreamily.

"It is possibly a translation error," cautioned Smirnov. "Perhaps there has been omitted a phrase such as: 'What mean come see me?' You know it would be impossible that he should come. Our Block Massive Cultural Transmission will not be digested by them all at once. I am pleased at the success it has already had."

"He is coming to see me," said Energine.

"No, no, girl. That couldn't be. You are deluded, but I can never tell you how much I appreciate what you have done."

"He is coming to see me."

"No, he is not. It is completely out of the question."

He came to see her.

IT WAS known that he had arrived, that something had arrived. Instruments of a dozen sorts had recorded him. *Albert Tentative arrives* was the glad word, but where was he, what was he? He seemed to be invisible and inaudible. But for the evidence of the instruments there were some who would have doubted the arrival of Albert in the world.

"I want a week off," said Energine to Gregory Smirnov. "No, I want a year off. Albert and I have so much to say to each other that we will never get it all said. And we're going to get married if we can figure out how to go about it. I really need some private advice on that. But look, just look!"

"A very beautiful and odd ring, Energine. Did he give it to you?"

"Did he give what to me?"

The ring was a sort of furry metal. It glowed and it changed colors. It circled the chubby little finger of Energine and she held it up to her cheek.

"I had no idea that anything could be so wonderful," she raptured. "We're so happy together. We went to the new Syrian Restaurant last night and had camel puree. It's so cute the way he eats it."

"How, Energine?"

"Gets right down in the bowl."

"Ah—Energine—let's get to the point. Where is Albert Tentative? It's important that we see him and examine him. Where is he?"

"Can't you see him? Why, I never suspected that. You mean that I'm the only one who can see him?"

"Patience, Patience, thou universal regent, do not desert me now! What does he look like, Energine?"

"Why, he's round and shining and furry, and he changes color."

"Energine, the ring he gave you—"

"Mr. Smirnov, that is no ring. That is my Albert. Oh, Albert, he thought you were a ring. How funny!"

ALBERT TENTATIVE was of great interest for about three weeks. There was first of all the epic press conference that Gregory Smirnov set up for him as soon as the method of plugging Albert in and giving him amplification was discovered. It might be said that there was first and last of all the epic press conference.

It was a success, let there be no doubt of that. It was a total success. There were those who came to wonder if the success was not too total.

There was resentment at first that foreign correspondents were not alerted and given a chance to attend it. Some came anyhow to see what they could pick up after it was over with, and found that it was not over with. Albert was still talking when they got there; he had been talking for a week.

Albert was a fine talker, now that he knew the words. The pidgin of the translation device had been that of the device, not of Albert. He answered all questions completely. Oh, how completely! He went into spate and answered questions that had never been asked and the newsmen and personages listened to him in relays, fascinated.

After a week of standing by, Energine—whose finger Albert had long since abandoned for many others—said that she thought she would go out to get something to eat. She looked dazed. She did not come back.

Albert answered the questions of the Chinese and the Arabs. He answered the questions of all the newsmen of Earth. He also had a Block Massive Cultural Transmission Corpus which he wanted to communicate. He recited the Epic Gilmish in which is com-

prised all wisdom. That took him thirty hours, perhaps not too long a period to be given to a work that comprises all wisdom. But the listeners were of flesh and blood and nobody knew what Albert was.

Gregory Smirnov stayed with it two weeks and then walked out. He shouldn't have done it as he was the host, but there was a weakness in the great man that manifested itself here. He went to see the President of the Republic.

"Suggest Project's discontinuance," he said to the President.

"But Mr. Smirnov, is not the Project a colossal success?"

"Quite."

"You have now established rapport with a completely alien being for the first time."

"Unfortunately. And perhaps not alien enough."

"Possibly you yourself are burned out by your great labors on the project."

"Possibly."

"I would be unwilling to abandon the Project now that it has proved such an outstanding success. Perhaps we should transfer the operation to another group. Could you suggest another group that might be able to handle it?"

"Enfield's Automations."

"An excellent suggestion. They're a bunch of comers. We will take steps for the transfer of authority."

"Goodbye," said Smirnov, and left.

"Did you notice that he seemed very short-spoken today?" the President asked one of his aides when Smirnov had left.

Albert Tentative was a great success for about three weeks. Then the Project was turned over to Enfield's Automations, and the whole thing went on automatic. Albert is still talking.

IT WAS some time later that Gregory Smirnov met Valery Mok on the street.

"Well?" he asked her.

"I, yes. You, I hope. News?"

"Of the bunch? Cogsworth dead. Shiplap mad. Glasser vanished."

"Energine?"

"Nun."

"Which?"

"Contemplative. Not talk, you know."

"The address?"

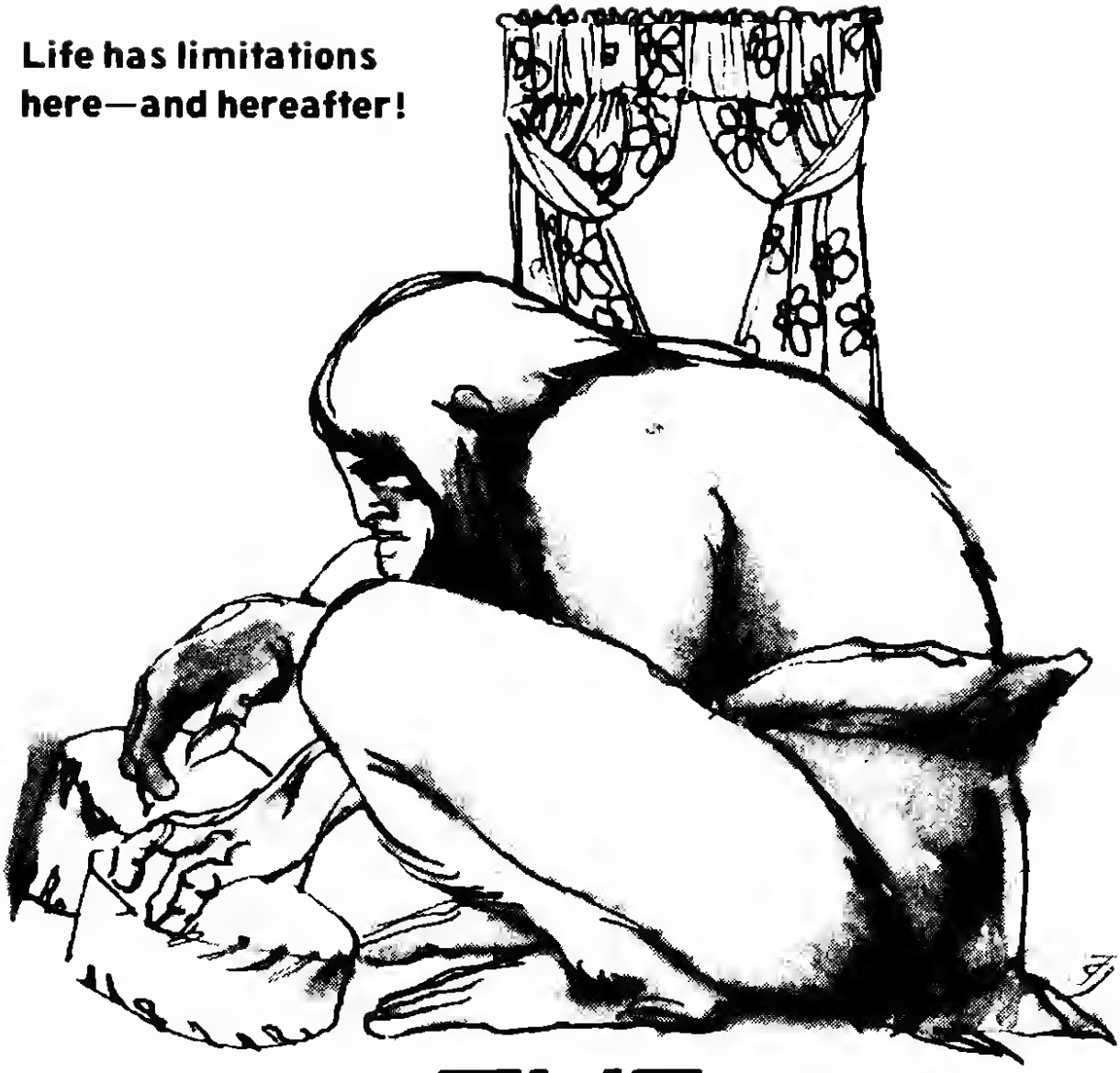
"Here."

"Thanks."

Smirnov went to have a glossotomy performed on himself, as well as an intricate operation on the ears. So they all arranged their lives.

In their final solution they all owed much to Albert Tentative. For in his recitation of the Epic Gilmish he had omitted nothing, not even the remarkable five-hour speech on the medicinal value of silence. ★

Life has limitations
here—and hereafter!



THE PHYLOGENETIC FACTOR

ERNEST HILL

LILIAN BANNISTER pottered around her neat little, bright little sitting room with a yellow little, soft little, hemmed-around-the-edges dust-absorbent duster. Dabbing and absorbing dust. A busy flick of a corner here and a fingertip twirl of a polish there. Keeping it tidy. There was nothing like tidiness. Nothing like dibbing with a duster. Intimate. Quite different from hosing around with a vacuum like an elephant begging for buns. Homely. Lilian Bannister liked a home to be homely. Even a trim little, prefab little, turned-out-by-the-yard little bungalow on the edge of the new town crescent, aluminum framed windows, a door chime that played a bar from *Blue Bells of Scotland* and a gnome by the front-garden fish tank. It was still home. Modern but intimate. Homely. Lonely.

She sighed. It hadn't always been lonely. Not when she and Sid had paid the first deposit, signed all the forms and moved in with an automatic washer, color television, two chairs and a double bed. Twenty years ago. Sid had worked hard since then. Climbed the promotion ladder to the very top. At least to the top of Sid's own personal ladder. He had become head buyer in the meat department. He had bought the rest of the furniture, piece by treasured piece, and carpeted the sitting room from wall to wall. He had built up the joint account, paid his pension contributions every month, taken out sizable life insurance and dropped down dead. Everything a good husband should do, Sid had done.

She missed Sid. She missed him so much that, although it was only three in the afternoon and the little house was too newly dusted for the lived-in look he liked, she switched him on.

"You're early today," he grunted. "Going out or something?"

She was never sure how they had built a time awareness into Sid that worked even when he was switched off.

"I wanted to talk to you," she said.

"Yatter, yatter, yatter," he grumbled. "All you ever did was yatter."

"That's not kind, Sid!"

"You switched me on," he pointed out. "If you don't like it, you can do the other thing and let me get some sleep."

There was a control somewhere —"Amiability Overide," the man had said. One of the many knobs on the front panel was labeled "Posterior Unspecific," needing, if she remembered rightly, careful coordination with the Social Awareness and Group Integration Veneer. She was afraid of the knobs and the press-buttons and the flickering lights and dials, but she would have liked Sid's Poste-

rior Unspecific more specifically amiable. Even so, even had she dared, it wouldn't have been the same. Wouldn't have been the same Sid. Not if she tinkered. They had set him, the man had said, as near to his overall prehumous mean as was humanly possible, but if she wanted him toned up or toned down, she had only to consult the manual. "A child," he had said, looking at her thoughtfully, "couldn't fail to understand it."

She had never understood the manual. *Activate 10 degrees feedback on the anterior specific register. Mentation level in posterior specific should coordinate with deep phylogenetic factor on syndrome characteristic equator. If paranoiac symptoms develop indicated by fluctuations above the psychocriterion—PRESS RED BUTTON IMMEDIATELY.*

It was the psychocriterion that worried her the most. She had never been sure where to look for it nor what it was.

"It's no use you brooding over them buttons like a Buff Orpington waiting for chicks," Sid grumbled. "You could never tune even the TV without me around to do it for you. Touch one of them things and most likely you'll blow us both up."

"You could tell me how. You'd like to be better tempered and amiable if I tuned up your unspecific cortex, wouldn't you?"

"You leave my unspecific cortex alone. You know as I can't work myself. I don't know anything now I didn't know before I copped it with a coronary and fell down the cellar steps. And you didn't have me then—so how can I work myself?"

"Don't talk about it." She shuddered, referring to his coronary.

"Why shouldn't I talk about it? It's not everyone who's died can tell you about it right up to the last bump on the head and the last thump of the ticker. Dying's a piece of cake, if you know how. I'd do it again any time."

"Not without I press the red button," she told him with a slight touch of understandable pride. She knew where the red button was. It was a button and it was red. Knowing that, she had him for the first time in their long life together completely in her power.

"Not until I press the red button," she repeated. "And I don't do that until you get a psychocriterion. The man said so."

He snorted.

"You wouldn't know a psychocriterion from a pound of sweetbreads."

"Yes, I would. I don't know what it is now but I shall when the time comes. It's like God, you don't know what he is but you know what he's not."

"I'm going to sing," he announced. "It's the only thing I can do to shut your yatter about things you don't understand. The only thing left I can do. No booze, no tobacco, no TV, no going to football. All I can do is sing."

"I like to hear you sing, dear," she told him, settling down in one of the float chairs with her knitting. "I know life's a bit dull for you now, but I do have you all to myself."

"Hay bag!" he shouted. "Rat bag! Want everything your own way. Always did."

"I have it my way now, dear." She smiled. "You were a bit expensive but with all that insurance, I managed. Sing me a nice song, love."

SID began to sing. It wasn't a song she had ever heard him sing before, which should have been, from what she had understood from the makers, quite impossible. He could, they had warned her, voice unlimited permutations of his previous sayings, could present his store of knowledge in any way he chose. But he could not progress. He could not voice a new thing, not based on a realignment of the old. And now he was singing a new song. She was at a loss to understand what had happened. The words, of course, were only a realignment of words he already knew. The notes were no doubt a revamping of notes already known. But it was not the words and the notes that were the innovation. It was the idiom. A jarring, jungle-based rhythm, raucous and repulsive. A beat demanding a drumming, a swaying and a stamping impossible to a middle-aged buyer in a meat department, now discarnate and wound on tape.

"Stop it!" she ordered.

"Go boil your head!" he shouted.

"I shall switch you off!"

"No!" he pleaded, suddenly apologetic. "Don't switch me off yet. I'm just getting the hang of it. Modern, that's what it is. So modern it's old as time, if you get me. I was going over it in my mind last night and I wanted to give it a try."

"Last night! But you were switched off last night!"

"Oh—well, yes—likely I was. But I don't die off that easy. Switched off, I'm what you might call disenthralled."

"What?"

"Disenthralled."

"You never knew that word before! What's happened to you, Sid? You never said a word like that before in your life."

"Now don't take on!" he comforted. "Not much difference in that from disemboweled and I said that often enough in business. Disenthralled—yes—I like the

sound of it. Disenthralled. Disenfranchised. Dispaupered."

"Dis—what?"

"Dispaupered. You know—like you got a ptochocracy and you don't dig it no more."

"What—what's a ptochocracy?"

"Rule by paupers, of course, you pea-brained old bat."

"There's something wrong with you, Sid. I'll have to do something—it must be the psychocriterion!"

"Keep your fingers off them knobs, you old nannygoat! There's nothing wrong with my psychocriterion and if there was, you wouldn't put it right. Protosaurian, that's what you are. All blubber and no brains."

"I ought to do something, Sid. You oughtn't to know words like that and you oughtn't to have been singing like you were. I'll have to put you down and ring for service."

"Now, look, Lil, old girl, don't you go on like that. You know you'd be lonely as sin without me—they take a month with these repair jobs. And if you touch that red button you kill me stone dead. Don't do that just when I'm being creative. Now sit down like a good old camel and let me think. Promise you won't switch me off for another half-hour—and I won't say another word you don't go for. Now is that a deal?"

"Okay, Sid," she said.

Sid had hardly lapsed into an active, dial-flickering silence when the doorbell chimed the full sequence of *Oh where and Oh, where has my bonnie lassie gone?* Embarrassing—she had forgotten when she switched Sid on that the day was Thursday. Louis Barraway called on Thursdays. Louis was very much a man about Stepney, a debonair forty-five, an entrepreneur of numerous enterprises from a barrow in Petticoat Lane to a twenty percent stake in a Swaffle Club in Shoreditch and a twinkling eye cocked for any widow with a house of her own and all mod. con.

She always switched Sid off when Louis called.

Well, she thought, as she kicked off her slippers and put on her opening-the-door house shoes, *a promise is a promise and it doesn't really matter. Sid can't see him and he has no cause to be jealous. After all, he has been passed over some time now and a part of him at least is in the arms of Jesus. It's only his voice. Louis is alive and respectable—and—well—real.*

She opened the door with a dry puckering of her mouth corners.

Louis greeted her: "How's me favorite old comfy-puffin bird today then? Give us a kiss, love!"

"Hush!" she whispered. "Not now. And mind what you're saying about puffin birds. Sid's switched on."

"Well—switch him off then."

"No—I can't. I promised. Now come and sit down and behave yourself. It's only for half an hour—but he can be very funny, Sid can, if anyone upsets him."

"Well stone me flippin' cock sparrers! Okay, love, if that's the way you want it. Always wanted to see how old Sid works. Can't see me, can he?"

"No—he can't see you, but you watch out. He has very sharp ears."

She gestured him to sit in one of the float chairs and left him gently rocking while she went to the sideboard for a bottle of stout. Sid sang a few notes, hummed a bar or two and experimented with a jungle beat by clicking his diaphragm. The chink of the glasses brought his attention back from his subjective world to the goings-on in the sitting room. He had counted two chinks.

"There's a change in the ambiance in this bleedin' menage," he said.

"You mind your language, Sid. We have company."

"Company?" he asked. "What company? You never told me about no company. Who's there?"

"It's me—Louis. How you doing in that box, pal?"

"Louis? What Louis? I don't know no Louis."

"No, dear, I know you don't—but I do. Let me introduce you both. Louis Barraway. Louis, meet Sid. Sid—Louis."

"PLEASED to meet you, Sid. Sorry you can't shake hands. Can I slap his back, Lil? Or don't he know he's got one?"

"What's he doing here? You been carrying on behind my back, you exophthalmic old trout? I'm not having your fancy men here in my house. He can sling his hook and get lost."

"Now that's not nice, Sid. You have to understand I get lonely sometimes. Louis is only a friend. No need for you to be upset about him."

"What you mean—lonely? You have me, haven't you?"

"But you're not really there, Sid. Louis is."

"Of course I'm really here. What are you talking about? You couldn't speak to me if I wasn't here, could you?"

"Now look here, Sid," Louis put in. "You and me have to understand each other. It's no use you brooding there. I came to see Lil and there's nothing you can do about it. The difference between you and me is—you're dead and I'm not. So—one more peep out of you and Lil switches you off, see?"

"Huh!"

"And it's no use you huhhing either."

"Huh!" Sid snorted. "The

parvanimity of the proletariat permeates me wick."

"What's he saying, Lil?"

"I don't know. He's started saying big words he shouldn't know—and singing."

.Sid sang. It was a song of such wild excesses, complex rhythmic ululation, nostalgic far-tundra yearning as no mortal ear had heard since the australo-pithecines. And even they had used the melody sparingly at bear festivals, moon wanings and occasionally for an unexpected equinox. It moved Lil to stop her ears and Louis to stomp in delighted frenzy.

"Here!" He panted as Sid stopped either for ventilation, inspiration or to allow his microcircuits to cool. "Keep him at it, Lil! Don't switch him off whatever you do! I've got me tape-recorder in the car."

"But you can't want that screeching," she protested as he brought in the recorder and plugged it into the two-way adapter also supplying the means of life to Sid.

"It'll be a riot down at the club," he whispered. "There's money in this, me old rockabye Venus. Songs my mother taught me—by Louis."

"But it's not by you, Louis, it's by Sid."

"I can mime, can't I?" He winked. "Let's get him real mad so he'll sing some more."

LIL didn't like it and, as the weeks went by, she liked it even less. Louis' picture was in all the papers. The club in Shoreditch had outgrown its premises and moved to a stadium in Hackney New Town. Every vocalist in the world was trying to latch on to the new East London sound, but it was no use. The East London sound was Louis' and Louis' alone. No one knew about Sid, locked in his box and eking away every residual charge in his capacitors in the long watches of the night. Composing—and when Lil switched him on for Louis, singing his diaphragm dry. Barely finding a spare moment at any time to nag and grumble at her in the old familiar way.

Louis seemed quite unconcerned with the ethics of using her Sid for his own dubious ends. Sudden fame had done little to make a character she now realized as having been only superficially plausible, likable in the safe taciturn way of Sid. She had already decided to put a stop to it when fate itself, the father of the gods, took a hand. Louis, a mini transmitter concealed behind his frilled-lace shirt front, had consented to broadcast and she had accidentally switched on the telly at the same time as Sid. She thought he would blow a fuse. His emotional mentation level, had she known it, was high above the

psychocriterion. Nothing she could say would convince him that he had not been betrayed and, what was worse, that she had betrayed him.

"You can't think that," she sobbed. "He did it all himself, Louis did. You can't think I had anything to do with it. You always trusted me before and you can't believe anything now you didn't believe then. The man said so and it says so in the manual, the man said."

"You forgot the phylogenetic characteristic," Sid retorted. "Deep down inside me, I have race memories, the same as I always had. It's not that I can't go further than the surface me, it's that I can't go further than the full sum total me, race memories and all. The phylogenetic me, if you know what I mean."

"No." She sniffed.

"Where do you think I get my songs from, you sniveling old baggage? I'm much simpler now than I was, however complex I look as a printed circuit. I can dive back into my bottom tapes and winkle out anything I want to, vocals and all. Know what that was your fancy burk was singing? Morning hymn to the Great Spirit, that was. An anthem to the all-god, the oldest of the old before all your religions got started. Right down in my bottom tapes, I'm back in the bosom of the Sun God and neither you nor your fancy Louis can get me back if I don't want to come."

"But I thought you were with Jesus," she whimpered. "The real you, I mean. You can't be anyone there, with all those wires and lights and things."

"Where a man's voice is, there is his heart also—said by Hitabuan, all-father of the Yaghan, when a man's voice stayed in its proper place as a mouthpiece of his soul. And I got my soul down here, lined up with all the rest of my works."

"But you can't have. Your soul's nothing to do with all those bits and bobs in that cabinet. It was made in a factory and advertised. I paid for it."

He grumbled. "Talk about me not progressing. You never had nothing to progress from. Your soul's not a part of your brain, is it? It latches itself on behind. And what's your brain but a lot of micro-circuits and relays, same as this lot I got now? It's just moved over where it could find me and, if you want to know, it likes me here. Far easier to manipulate this box of tricks than me old brain that had a lot of redundant animal matter clogging its works. Right here I'm a saint and a genius and a one-man ethnology. A disseminator of all the wisdom of the ages. And that's not as much wisdom as it ought to be, by a long chalk. So you can button your gab and get down on your fat porky knees and

show me a bit of respect."

"Oh, Sid, please—"

"Genuflex, woman!" he shouted. "Bend your bulgy buttocks and bow down before me!"

She trembled. "How do you know I'm not bowing down?"

"Because I'm getting to see you." He chortled. "Extra-retinal, I guess they call it. I got a vision of you, clear as daylight but a bit misty around the edges."

She lowered herself unsteadily to the floor and kneeled before him.

It was then that Louis came in, proprietor fashion, wearing a new outfit in the idiom of a nineteenth century Dakota cowhand and carrying a tape recorder under his arm.

"You got to kneel to Sid," she whispered. "He's got religion."

LOUIS fondled the ends of his trailing Mandarin mustache and ran the spur of his right boot reflectively up and down the fluted deerskin covering of his left tibia.

"Come off it, Lil. He's only a box of wires. Get up and make him mad. Likely he'll sing for us."

"You show Sid a bit of respect!" she snapped.

He smirked. "Okay, if that's the way it is. Anything he wants, he gets, me old dolly-lugs."

"No one calls me dolly-lugs but Sid."

"Oh? Aren't we the old together-now-for-forty-years old Dutch today! Anything you say, Lilly girl."

He went on his knees beside her and bowed three times to Sid.

"Give us a tune, mate. This missus of yours is getting water on the knees, squatted here."

"Stop it, Louis. Sid's not the same any more. And take your hand off my backside. He can see us now."

"I don't believe it."

"Sid," she said, tremulously. "Louis is here, Sid. And he's kneeling. Have you anything to say to Louis, Sid?"

"There was a little man, little men, all over the ice cap," Sid said and his voice was far away. "Trudging through the snow, dying of hunger, falling down crevasses and never knowing when they would come to the end of the ice. But they had God in their hearts and they took God with them all over the world. It didn't matter about the cold and the ice and the game dying off wherever they went. They had God in their hearts in those days. They took him. They took him wherever they went."

"What's he on about? Why doesn't he sing to us?"

"Life was good in those days, looking for a cave, looking for birch bark to make a tent. Looking for sticks to rub together to make a fire. God was with us then.

We haven't progressed at all."

"Look, Sid, I'm not kneeling down here all day listening to you rambling and neither is Lil. I'm getting up, see?"

"It really doesn't matter any more." Sid sighed. "Not now that I've seen you and Lil and everything nice and cozy. I've been wandering about a bit now that my soul's not caught in the flux as tightly as it used to be. I want to go back to where I started. Carving a reindeer horn with something they call a *coup de poing*. It was just a stone to me. I want to latch my soul around my bottom tapes and go back over the ice cap with God all day, looking down in the eye of the winter sun, next to someone like Lil in a sea-lion cape. And the wind blowing. Always blowing, the wind was."

Lil scrambled to her feet, refusing, out of deference to Sid's presence, a helping hand from Louis. She had never known Sid like this before, withdrawn, nostalgic, even poetic. It was, she knew, without being able to recall the exact word, the phylogenetic factor in his psyche. She was suddenly very much afraid of the phylogenetic factor.

"Sid," she begged. "Don't be like that. I'll do anything, really I will. If it's Louis you don't like, he can go. I never wanted Louis really, Sid. It was you I wanted back. That's why I spent all the insurance on having you tuned into your box. Don't go and leave me now, Sid. That's what you meant, wasn't it?"

"Don't take on, love," he told her. "We all have to go some time. Back to the beginning if we're lucky and make a better job of it. Just look for the phylogenetic control, there's a good girl, and turn it down to zero. As soon as you see the pointer fall—press the red button. I'll be back where we all ought to be back to. Back where the soul knew who it belonged to. It started to roll away with the wheel and it never found its way back until they built me. Simplified, you see. A lot of the intermediate works left out and none of the old animal bits. Turn down the knob, there's a good lass."

"I can't, Sid!"

"Now you listen here," Louis protested. "You've upset Lil, talking a lot of old codswallop. We aren't primitives any more, thank God. We're civilized. What's all this about ice caps? Who wants ice caps? Who wants to go out in the rain without an umbrella? You have your snow and ice if you want it. We're all right where we are. Automobiles and air conditioning. You just stop this God-in-the-wilderness caper and sing us a song."

"It's a song you want, is it?" Sid asked.

"Just let me turn on my tape

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recorder and you can start chanting."

Sid sang. Not a song with words. No longer a wild jungle rhythm, evocative of a thousand stamping feet, it was a single sad and lonely voice crying in an empty wilderness. Soft at first, rising in a two-tone ululation to a frost-ringed moon, remote above the endless wastes of frozen tundra. Listening. Waiting for the moon to answer back.

"What's he doing?" Louis whispered.

"Ululating," Lil answered, knowing that it was so.

Sid continued to ululate, the repetition of his theme demanding, urging her toward the Syndrome Characteristic Equator. To the knob. He was guiding her hand to the phylogenetic control and nothing she could do would hold it back. As she turned the knob the ululation died away. There was only a faint sighing like the tundra wind. A whisper. A caress. No longer words, nor ululation nor even the whisper itself, moved her finger to the red button DEATH on the module. She had the knowledge that Sid was there, all around her, the soul of Sid gathering itself for the flight back to the beginning of all things, when a soul might call itself its own. She pressed the button and with a long sigh, Sid expired. She sank into the float chair, let her head fall forward and covered her eyes with her hands.

"Ah, well," Louis said, "that's the end of that, then. No need to take on. Plenty of him on tape to last us a while yet."

A silence.

"Hey?" he asked. "You all right? You went very quiet all of a sudden."

He laid his hand on her shoulder and she fell back in the chair, rocking gently like a raft on a calm sea. Lil, too, had gone back with Sid to find her way across the ice cap. It was cold and there was a long way ahead of them but the moon was very bright. ✦

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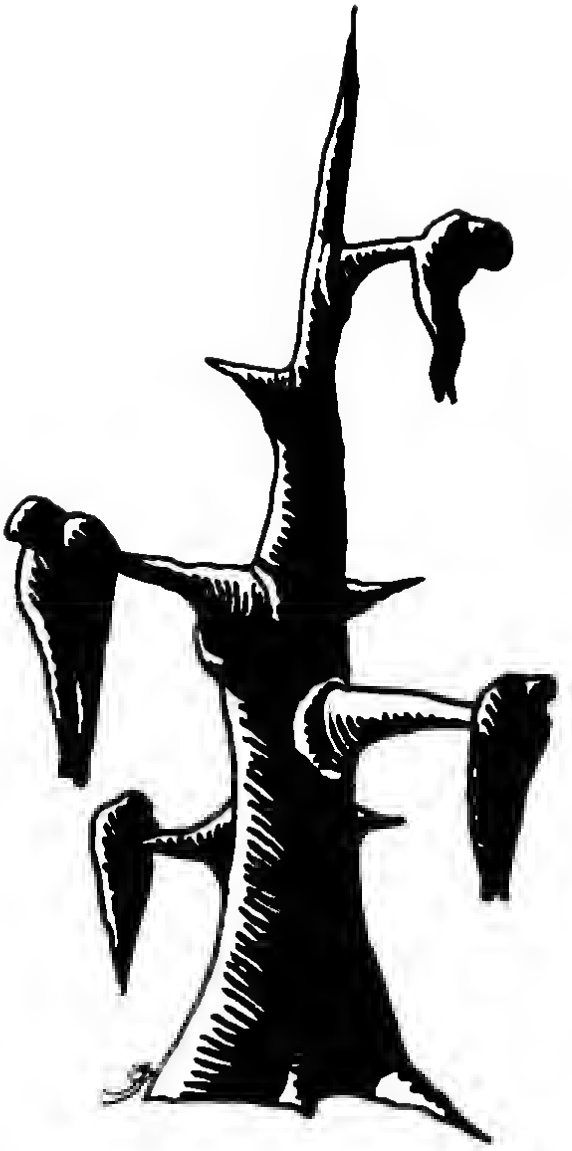
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J. K. SWEARINGEN

THE S.B. NOTATIONS

A puzzle story about the arithmetic of prejudice . . .

1

Sometimes we go up on top of the cliffs to play but not often. When the tide's out a hard beach grows in front of the Door, miles and miles of sand that nobody else knows about and wet enough to hold a fort together and with kribs to catch and all kinds of shells. But the cliff is better. There's grass on the cliff.

All we have to be careful of is if the Sets catch us, which they probably won't because they don't much use the cliff road any more. And anyway there's supposed to be guards. And we do know what to say if they catch us, but I won't say it. I don't intend to waste too much time talking, not if a Set gets me.

Birds nest in the grass where the trees are, but we aren't supposed to go there. Things can hide in trees. Eggs are good, though. I used to take a lot of them to Mam.

10

Pap says that pretty soon a man won't be able to live his own life like he wants to. He says the meat's getting scarcer. What I guess he really means is that the folks are getting familier and hungrier, because today he brought home a fine biggish kill and there was nothing left by noon but bones because we were darn tired of kribs and fishes and we're almost out of winter-pickled. So Pap went around the rest of today swinging a cleaned legbone, kicking things and folks and saying how scrawny the meat was and that it was a pity, a real pity. That he'd developed a liking for that kind of meat during the hungry times when most everything else died, just because he thought there'd always be lots of it, and here we were about to hunt it down to scrub in two generations. Folks stayed out of his way mostly. Then Alwin brought in one that wasn't much more than a baby, and Pap got even madder because he says if we kill off the little ones there never will be big ones, which makes sense. But Sandifer says hungry is hungry *now*, the future has to do the best it can, and that makes sense tρo.

Anyway, it was just enough for a stew, so we had a kind of picnic at the Door in the last sunlight on the beach until the tide came in. Then our feet started picking up the damp out of the sand so we threw the scraps for the kribs and stored the wood out of the water and moved deeper in.

It rained almost all night. We all had to hunt a place to sleep. Our room leaks now.

11

Sets were on the cliffs yesterday, lots of them. They've never hunted there before. Not on the cliff. I guess we were lucky it

rained and I'm sure we can't play up there for a while. I wonder what it is brings them out. They don't seem to have a regular hunting season either.

While they were up there I went down to the hideyhole and looked at a couple of books. They're mostly silly stuff. Even Mam agreed on that. Some of the others came along and played with the shiny junk and dress-up stuff. There are all kinds of things in the books, but some of them Pap says are lies.

100

We can't build a cure-fire with Them restless, so we had to pickle Pap's good-hunting and that took three days. But when it was done they let us play on the beach. We were supposed to be setting salt-pans, and we were, but we were playing too.

Ferin and Eb and Brother stood guard on the cliffs, which was silly. Sets never hunt the same ground twice and they don't build boats. Pap says they ain seawise. He don't build boats either. Doesn't. Still, it's boats Eb says they're really watching for, since that's the only easy way to get down to the Door, but he doesn't believe in boats neither. Sometimes we think Pap made them up. He does make things up. There's not really a monster in the halls behind the smokeroom. If you go there and call out, "Hey, old Rawhead-bloodybones," nobody comes. I knew that a long time before Sandifier told me. So I don't believe in boats, too. Although they might work.

Sellie drowned while we were playing on the beach. Afterward I sneaked past Brother to watch the closest Sets. It's not dangerous if *you* sneak up on *them* and Pap never said we couldn't.

It's easy. There's a bush by the outmost shelter with leaves all thick on the outside and a hollow space around its stem and branches, like a big empty spore-ball great for hiding in. I can see everything they do and they sure do funny things. They make a lot of noise. They don't seem to have a Pap. They live in odd-sized groups, not families at all. Some of them are just Couples. I don't know why I like to watch them. They have some things I want.

101

My dad found out where I'd been, don't know why I told him. He told Pap and they both beat me up. They'll be sorry for that.

111

I could walk again today, but not for long I guess. I went back to the Sets and took one of the little beasts. My dad beat me and that's two I owe him for, but Pap says I can keep the little beast if it catches its own meat and don't eat ours,

which I don't much think it will because when I sneaked it a piece it got all excited and bit *me*. But it's a sweet beast, very soft. It cuddles up to your side and it makes a pleasant noise before it goes to sleep.

1000

The little beast caught four varmints today in the smokeroom. Some of the folks saw it catch three *wham*, *wham*, *wham*. And it brought a fourth one to me. Pap is very pleased. He told me for another time why we can't go near the Sets. I know why. They eat us, of course. I don't know why Pap bothered with all that stuff about slime-molds and hungry times and plants dying, unless he's trying to tell me something else. He says if I go near the Sets again he'll take me up to the far mountains. So I won't maybe.

1001

Brother brought me up a lot of books while I was so stiff. Funny how I understand some things about writing and not others. Punctuation. There's no sense in it. I can understand quotation marks. They're a way of letting you see on paper what you can really see happening. And periods sometimes. But commas are silly and so's spelling. Letters are supposed to stand for sounds, but they sometimes don't. Like, Pap says "ain" which the books add a t to, and one of those apostrophes. A big word for a little thing. Silly. Except when it stands for a letter left out, like in don't. Then it means a not-sound. Silly. Those books do lots of dumb things. I don't know why I like to look at them. I don't know why I like to play like this is one I'm writing. Even Mam doesn't really like them, except for that one Pap burned with her when she died. That always seemed real wasteful to me.

1010

Soon as I could walk again they let me go hunting. Nobody liked it much but Pap. "Just once," he said. "Things get any tougher an we'll have to use em all." So I went, but Pol grumbled all the way that Pap thought I was special. Maybe he does?

We had to go a long way but I didn't mind. It was beautiful in the trees. That light yellow-green was everywhere but on the ground and the whole world sort of warmed and glittered. I thought it might be too much light and it was, but we're getting on toward winter.

We'd been hiding just a little while when a cluster came along, a big bunch, gabbling as usual. Maybe they figured numbers were safety. They weren't. One of them almost got away, but Eb was on westguard and caught him. Then

we carried them out in the clover and cut their throats so the meat would be sweet. The worst part was lugging it home. I got sticky. It's a pity we can't bring them home alive.

I felt funny during and afterward. It was like a star exploded in my head. It was like my blood was rain and lightning. I never felt that way before. I guess everybody felt pretty good, we got enough to last for months. But right in the middle of the party Eben and Beke said they planned to Couple. They'd already found a new room to be Couple in and I wonder where it is. I thought for a minute there might be trouble because Sandifer's been with Beke since her mother died, but Pap broke it up. "Don't be a damfool," Pap said. "Her and Eb'll get along. How many times I got to tell you it's wrong to kill each other? Never seems to take."

So they were quiet. Sets kill their kin on smoke-hooks, but we don't. Sandifer took Beke off a while, then he shook hands with Eb and told Pap he's waiting around for me. He's joking, I guess. It'd be okay if he wasn't, though.

1011

The little beast is gone. I don't think it went back. It liked me. I think Pol killed it. He'll pay for that.

1100

We got all the fruit and stuff we could from the hillwoods, and Pap bought more grain and sugar from the Sets, but he can't buy enough so they'll suspect how many of us there are. They tolerate just him. He says this'll be a lean cold winter. I believe him. The grass on the cliff is already turning purple and the whitetails have gone off to the far mountains.

So we went through the vatrooms and smokerooms and picked out the bad bits and threw them in the water by the Door. It was sad to see so many well-fed days go floating off but there's nothing we can do about it. Some of it goes bad no matter how much salt or stuff you put in it. I don't know why. And since my dad got hold of that bad piece that killed him, Pap's not taking chances.

I asked Sandifer why we didn't go down to the Sets and steal some of their food. Pap says we're better than they are because we survived in spite of them, but they sure know better ways to keep meat. But Sandifer said I couldn't go, so I won't.

It doesn't matter anyway. I know the little beast's not there.

1101

They were up there again today with their iron things, the things I've seen them loading the moving shelters with but never so close.

They scared me, they don't look real. Even in the back rooms we could hear their big hard feet and see their shadows sometimes through the roof chinks. Then we had to go even deeper. They're very heavy, and pieces of the roof fell in.

They left deep tracks like joined worms. Some places the grass was just a pulpy smear and I hadn't thought it had that much juice left. I guess if any of us had been up there we'd have been smeared, too. We were lucky Alwin saw them in time for warning, except Pol. I couldn't find him. Now nobody can. We found his cap, though.

Brother asked Pap today if I wasn't old enough to Couple, Pap said not, but I don't know.

1110

I know. It's the meat that brings them. Every time we throw out scraps the Sets come. Tide must take it past their places. I tried to tell Pap about it, but he's in no mood for listening. I guess he's grieving for Pol.

1111

Maybe Pol told them the way to the Door. He's alive, I've seen him. We fought, but there were lots of them and the men were all away. Karlie killed one with a vatstick and we pushed rocks on some, but they had new tools for killing and got Karlie and Jann. There was very little noise and blood. We thought they were ours at first. When Beke took the kids into the back halls, I think she tried to trigger the old rooftraps on the Sets. They dug for a long time, trying to get to her. So I think all those are dead too. And the men, of course.

I wish some of the men had been here when they found the larder. We could have got them. They were very sick, some couldn't walk. One of them yelled and hurt me with one of those new things. Then he took a piece of our meat off, hugged to his chest. They took some bones too out of the waste-hole. They were very careful which ones they took, like they were hunting for special ones. Scavengers. They didn't touch my dad's. Then they took all of the shiny stuff in the hideyhole. Pap says it's only good to get you hanged, so I hope it gets them. They made us walk down to the settlement ourselves. They'll probably come back for the other meat later. They're either not very strong or real lazy.

I don't know why they're doing it this way. I guess they're just Sets, not like us, and funny. I think I'm scared.

So they took us to the settlement and put us into one of the moving shelters. It wasn't here last time I was. It seems to be made mostly out of metal. I don't think I can get out of it. Anyway, that's where the men were, not dead but

some hurt, and where the one with so much hair on him tried to fix my shoulder and found the book, this book. He took it away from me and I yelled until he gave it back. Then he wouldn't let me go with the others. Said he wanted me a little while, and Sandifer got mad. So now they've put me in this very little metal room that doesn't seem to get dark. I don't like it. At least he gave the book back. Wish I were with the others.

I guess the Sets think it will be a lean hard winter too.

10000

The hairy one is called Doctor and talks a lot. After a while I could understand him. Mostly he asked questions about Pap and the others. Silly stuff like who was what to who. Whom. Then he started giving me things to read so he could ask questions about them. Sometimes he gives me things to do with my hands. Then he stands behind a big clear sheet of hard stuff and watches me. He's funny. I wish they'd let me see Pap and the rest.

They took me outside once. It was strange to see trees and all still there. It's hard to believe in trees inside that room. And it was strange to see the settlement from that point. In the middle, not the edge.

Some of us were out there walking, too, with lots of Sets around them. None of the men. I wanted to talk to Lenor and I think the Crew would have let me, but Doctor yelled at him not to. When Doctor came this afternoon, I wouldn't talk to him. He didn't like that.

10001

I'm not mad at Doctor any more. He took me to see Pap, who looks real tired and mad and old, but mostly tired. Pap told me not to tell anything. I won't. But they wouldn't take me to see Sandifer. Pap hugged me real tight. I think he cried. The Sets have charge of him and the others. Doctor has just me.

Doctor isn't like the Sets. I don't think he is one. The things he wears are different, prettier. Also his skin's a little different color, and he speaks Old Solar, which was Mam's language, and the Sets don't speak that. There are some others, Crew, who dress like Doctor, only with the signs different, and live in this shelter too. The Big Guy who came with Doctor several times is their pap.

There are Sets all around, though, and all of them are mad at us. I don't know why, we didn't do anything to get mad about. But they want to put me in with the others, and Doctor won't let them, and it makes them all mad. I've worked a piece of frame around the glass loose so I can listen to them

when they're in the watching-room and yesterday was a good day for listening.

"It's not like this was the only case of it in the world," Doctor was saying. "There was a family in Scotland, the Beanes, I think."

"How does that change things?" asked one of the Sets.

"It doesn't, unless it makes them a little less horrible."

"Murder is a pretty common crime," another of them said. "I still find it horrible."

"Yes, yes, you're right. But here we have to determine shades and degrees of guilt the way we don't have to in most cases. The old man now. He talks about the slime-mold plagues and the famine all the time. He thinks he did what he had to. You've heard him." (I like quotation marks. And parentheses. Funny I can think about that now.)

"Excuses. Some of us survived without those measures."

"None of the originals did," Doctor reminded them. "Except them."

That made them mad. "When we called your people in we didn't think you'd side with him."

"It's not his side I'm on. Dammit, that's the only side I'm not on. He knew. Oh, yes, he knew. But how can you blame her? She never did know. Nobody told her."

They tell him that's what worries them, three generations, and he waves my book at them. "Read this, I tell you. Dammit, look at the mind that's here. My business is minds. I know a marvel when I see it. Here's one that gropes and explores, a nearly photographic mind. But there are blind spots. There are things that no one can figure out, things we have to be told. And she wasn't told."

Finally he got one of the young ones to take the book. I was scared it was gone for good, but he brought it back today and handed it to Doctor, and said, okay, *he'd* better read it. Again. Doctor had it a long time, but it came back this afternoon. A Crew brought it and I was sorry because I wanted to ask Doctor what it was I should be told. I mean I know that I don't know everything, but people won't answer questions. I will ask him. He's good at questions.

But somebody has underlined and marked my book all up. I bet that dam Set did it.

10010

I was glad to see Doctor today, because it's been three days since the last time. I guess he's been busy. The place has been full of Sets, mostly old ones. Their paps, I guess. But I didn't get to ask Doctor all the questions I'd thought up, because the Big Guy was with him and I'm awful scared of the Big Guy.

Doctor looked real tired, but he said he was okay when I asked him. He sat me down and sat down facing me and the Big Guy walked up and down behind him. "I have some questions, Sarah," he said. "Please answer as carefully as possible. Now. You're not a Set, are you?" I told him no, of course not and he asked, "They're different from you?"

"They're Sets," I told him.

"See?" he said to the Big Guy, who shook his head.

"Too soft, Charlie. Doctors shouldn't dodge. Ask some of the real questions. What happened to—?"

"I'll ask," Doctor said. "You let me pick the questions."

"Pick 'em then. But bear in mind how thin this business is. We were an ordinary, grade-one squad investigation. We don't want a planetwide revolution."

"Okay, okay."

"And I can't see what difference it makes anyhow. That book they read part of at the trial shows—"

"It makes all the difference." Doctor was talking to him but looking at me. I don't know what was wrong with his face. "If she thought the way I think she did. Different species—there's no morality involved."

"And the fact that from one couple, one renegade couple, you get nine grandchildren? Is there no morality involved in that?"

"You'll blame the children for that?"

"No," the Big Guy said. He said it two or three times. "Ask."

"Sarah, exactly how are the Sets different?"

"They live in settlements," I told him.

"Wait. Think carefully. Is that the only way the Sets are different from you?" So I told him they did different things, lived in the open and liked plants and kept beasts and married strangers and spoke funny and hung meat in the open air. He didn't seem to like any of that. The Big Guy stopped walking. "Sarah, am I a Set?" the Big Guy asked. I said I didn't think so. They looked at each other. Doctor said very slowly, "Okay. Let's say we have two of the things that you call little beasts, and one of them is bigger and has spots, and the other has stripes. One of them lives in the trees."

"Which one?"

"The spotted one, damn it. The other one hates trees and never goes there. How many different kinds of animals do we have now?"

"One," I told him.

And he jumped straight up and yelled at me. "Then *we're* the same! And the Sets! Sarah, do you expect *me* to eat *you*?"

I told him not right then, at least I didn't think so because he liked me, I thought, but maybe Pap and the rest. Why else did they catch

us? And then I cried very hard.

I could hear the Big Guy saying, "Charlie, Charlie," and Doctor after a while, "Think about how young she is," and the Big Guy saying,"I am, and about her getting older." And Doctor went away, but the Big Guy stayed, not talking. Mostly he walked. I don't know when he left. I was still crying.

I feel very strange. My eyes hurt. I'm not afraid. Why are they doing this?

10011

I think they killed Pap and the others. There was lots of yelling. I think they were still mad with us and did it very hard, not even with the meathooks that I saw them use before, the ones like upside down capital Ls.

I would have liked to see Sandifer again. And Pap. My eyes still hurt.

Doctor says they'll take me out of here. I wonder where. He says he won't see me any more, and I think I'm glad because it makes him unhappy. I like him.

But why do I feel so scratched? And all my bones feel broken. No one's touched me. I wish I could stop crying.

They'll be sorry for this.

There's no sign of the little beast. I won't write any more. ★



Larry Eisenberg, whose latest Duckworth story appears in this issue (Page 169), writes us as follows:

Duckworth is my hero. He's creative, bold, full-blooded and not averse to trying to set a bumbling Establishment on the proper path.

I have been asked if there is a real life model for Duckworth. Actually there are several, but one of my dear friends comes closest to the Duckworthian mold. Naturally he is unaware of this considerable honor, but only because as yet, through some incredible oversight, he hasn't won his first Nobel prize.

A good part of my work day is spent at Rockefeller University in an ivory tower, tussling with instrumentation problems at the Electronics and Computer labs. Often I feel sheltered from the real world outside. But lately, inflation, arms budgets, cutbacks in research appropriations, and the modern dilemma of scientific responsibility, keep slipping into my everyday discussions.

I try to hold on to laughter. Humor plays its part in my work and my family life, serving as an unequaled buffer against that "stop the world, I want to get off" feeling.

On May 1, 1971, Scribner published a collection of my stories, *Best Laid Schemes*, half of which involve Duckworth. Still available is *Games People Shouldn't Play*, a series of psychiatric case histories that should make readers—and authors—feel normal.

What of the future? Duckworth is an incorrigible optimist and so am I. But since neither of us takes anything for granted, he shall continue to fight his quixotic fictional battles. For my part, I shall do the very best I can—in and out of the ivory tower.





ROBERT SILVERBERG

ALL THE WAY UP, ALL THE WAY DOWN

He became all the cities of Urban Monad 116, a mosaic of thousands of minds—less his!

I

THEY are playing tonight in Rome, in the spishy new sonic center on the 530th level of Urban Monad 116. Dillon Chrimes hasn't been that far up in the building in weeks. Lately he and the group have been doing the grime stint: Reykjavik, Prague, Warsaw, the working-class levels, down among the grubbos. Well, they're entitled to some entertainment too. Dillon lives in San Francisco—not so lofty himself. That's the 370th floor, only a third of the way up the building, the heart of the cultural ghetto. But he doesn't mind that. He isn't deprived of variety. He gets around, everywhere from the bottom to the top in the course of a year, and it's only a statistical anomaly that it's been nothing but bottoms up for a while. The odds are he'll be blowing Shanghai, Chicago, Edinburgh, that crowd, in the month to come. With all those clean long-limbed lovelies to visit after the show.

The building is a thousand stories high. Divided into twenty-five cities of forty floors each, Reykjavik on the bottom, Louisville at the top. The current population of Urban Monad 116 is something above 800,000 people. It's one of 51 identical urbmons in the Chipitts urban constellation. Altogether Chipitts has something more than 40 million people. The global population, based on the 2380 census, is 75 billion. Dillon doesn't think much about what goes on outside his own urbmon. No one does. Every place is more or less like every other place. God bless, you stay home, get married early, have lots of littles, fulfill the divine commandment. Be fruitful and multiply. Everyone does it. *We're all a lot happier than we were in the old chaotic days.* The urbmons were a neat solution to the people problem. Take one hunk of superstressed concrete three kilometers high, divide it up into enough one-room suites to provide homes for 120,000 or more family groups, surround it by fertile farmland—sure, in a vertical civilization like that you could double the world's population every five years and still get along. With certain minor adaptations to circumstances, of course.

Dillon is seventeen. More than middle height, with silken blond hair to his shoulders. Traditional, the old Orpheus bit. Crystalline blue eyes. He loves staring at them in a round of polymirrors, seeing the icy spheres intersect. Like everyone else in the urbmons, he got married young. Happily married and three littles already, god bless! His wife's name is Electra. She paints psychedelic tapestries. Sometimes she accompanies him when he's touring with the group, but not often. Not now. In all his

travels up and down the building he has met only one woman who delights him nearly as much. A Shanghai slicko, wife of some Louisville-bound headknocker. Mamelon Kluver, her name. The other girls of the urbmon are just so many slots, Dillon often thinks, but Mamelon connects. He has never told Electra about her. Jealousy sterilizes.

He plays the vibrastar in a cosmos group. That makes him valuable personnel. Most of the people of Urbmon 116 are just breeding stock, performing idle jobs to pass the time, but he's an artist. "I'm unique, like a flow-sculpture," he sometimes boasts. Actually there's another vibrastar man in the building, but to be one out of merely two is still a decent accomplishment. There are only two cosmos groups in Urbmon 116; the building can't really afford much redundancy in its entertainers. Dillon doesn't think highly of the rival group, though his opinion is based more on prejudice than familiarity —he's heard them three times, is all. There's been talk of getting both groups together for an all-out headblaster of a joint concert, perhaps in Louisville, but no one takes such teasers seriously. Meanwhile they go their separately programed ways, moving up and down through the urbmon as the spiritual weather dictates. The usual gig is five nights in a city. That allows everybody in, say, Bombay, who stones on cosmos groups, to see them the same week, thereby providing conversation-fodder for the general sharing. Then they move along and, counting nights off, they theoretically can make the circuit of the whole building every six months. But sometimes gigs are extended. Do the lower levels need excesses of bread and circuses? The group may be handed fourteen nights running in Warsaw, then. Do the upper levels need psychic deconstipation in a big way? A twelve-night run in Chicago, maybe. Or the group itself may go sour and have to get its filters reamed, necessitating a layoff of two weeks or more. Allowing for all these factors, there have to be two groups roaming the urbmon if every city is going to get a crack at a cosmos show at least once a year. Right now, Dillon knows, the other operation is playing Boston for the third week. Some kind of problem with sexual turnoffs there, of all wildnesses!

HE WAKES at noon. Electra loyally beside him; the littles long gone to school, except for the baby, gurgling in its maintenance slot. Artists and performers keep their own hours. Her lips touch his. A torrent of fiery hair across his face. Her hand at his loins, wandering. "Love me?" she sings. "Love me not? Love me?"

"You medieval witch."

"You look so pretty when you sleep, Dill. The long hair. The sweet skin. Like a girl, even. You bring out the Sappho in me."

"Do I?" He laughs and crams his maleness out of sight between his lean thighs. Clamps his legs. He gouges his palms against his chest, trying to push up ersatz breasts. "Come on," he says hoarsely. "Here's your chance—"

"Silly. Stop that!"

"I think I'd be very pretty as a girl."

"Your hips are all wrong," she says and pulls his locked feet apart. But there will be no sex between them now. He rarely indulges at this time of day, with a performance coming up. And in any case the mood is wrong, too skittish, too brittle. She vaults off the sleeping platform and deflates it with a kick of the pedal while he is still on it. An airy whooshing. That sort of mood; presexual, childish. He watches her waltz to the cleanser. What a fine butt she has, he thinks. So pale. So full. The splendid deep cleft. The elegant dimples. He creeps towards her and stoops to nip a hinder cheek, carefully, not wanting to leave a blemish. They share the cleanser. The baby begins to yowl. Dillon glances over his shoulder. "God bless, god bless, god bless!" he sings, beginning basso, ending falsetto. What a good life, he thinks. How neat existence can be. Electra, pulling on her clothes, says, "Can I get you some fumes?" A transparent band over her breasts. Rosy nipples like little blind eyes. He is pleased that she has stopped nursing; biology is tremendously moving, yes, but the dribbles of bluish-white milk over everything annoyed him. Doubtless a failing to eradicate. Why be so fastidious? Electra enjoyed nursing. She still lets the little suck, saying it's for the child's pleasure; but there can hardly be much kick in a dry tit, so Dillon knows the locus of the joy in that particular transaction. He hunts for his clothing.

"Will you paint today?" he asks.

"Tonight. While you're performing."

"You haven't worked much lately."

"I haven't felt the strings pulling."

It is her special idiom. To practice her art she must feel rooted to the earth. Strings rising from the planet's core, entering her body, snaking into her and then tugging. As the world turns, the imagery is wrenched from her blazing distended body. Or so she says; Dillon never questions the claims of a fellow artist, especially when she is his wife. He admires her accomplishments. It would have been madness to marry another cosmos-grouper, although when he was

eleven he had just such a thing in mind. To share his destinies with the comet-harp girl. He'd be a widower now if he had. Down the chute, down the chute! What a flippy filther that one had been. And had wrecked a perfectly wonderful incantator, too, Peregrun Connelly. *Could have been me. Could have been me. Marry outside your art, boys; avoid unblessworthy invidiousness.*

"*No fumar?*" Electra asks. She has been studying ancient languages lately. "*Porque?*"

"Working tonight. It spills the galactic juices if I indulge this early."

"Mind if I?"

"Suit yourself."

She takes a fume, nipping the cap neatly with a daggered forefingernail. Quickly her face flushes, her eyes dilate. A lovable quality about her: she is such an easy turnon. She puffs vapors at the baby, who chortles, while the maintenance slot's field buzzes in a solemn attempt to purify the child's atmosphere. "*Grazie mille, mama!*" Electra says, mimicking ventriloquy. "*E molto belle! E delicioso! Was für schönes Wetter! Quella gioia!*" She dances around the room, chanting fragments of exclamations in strange tongues and tumbles, laughing, into the deflated sleeping platform. Her frilly frock blows up; he sees an auburn pubic glow and is tempted to top her despite his resolutions, but he regains his austerity and merely blows her a kiss. As if perceiving the phases of his mental processes, she piously closes her thighs and covers herself. He switches on the screen, selecting the abstract channel, and patterns blaze on the wall. "I love you," he tells her. "Can I have something to eat?"

She breakfasts him. Afterward she goes out, saying that she is scheduled to visit the blessman this afternoon. He is privately glad to see her go, for just now her vitality is too much for him. He must slide into the mood of the concert, which requires some spartan denials from him. Once she has gone he programs the terminal for a reverberant oscillation and, as the resonant tones march across his skull, he slips lightly into the proper frame of mind. The baby, meanwhile, remains in its slot, enjoying the best of care. He thinks nothing of leaving it alone when, at 1600 hours, he must go off to Rome to set up for the evening's performance.

THE liftshaft shoots him a hundred sixty levels heavenward. When he gets off, he is in Rome. Crowded halls, tight faces. The people here are mostly minor bureaucrats, a middle echelon of failed functionaries, those who would never get to Louisville except to deliver a report. They are

not even smart enough to hope for Chicago or Shanghai or Edinburgh. Here they will stay in this good gray city, frozen in hallowed stasis, doing dehumanized jobs that any computer could handle forty times as well. Dillon feels a cosmic pity for everyone who is not an artist, but he pities the people of Rome most of all, sometimes. Because they are nothing. Because they can use neither their brains nor their muscles. Crippled souls; walking zeros; better off down the chute. A Roman slams right into him as he stands outside the liftshaft bank, considering these things. Male, maybe forty, all the spirit drained from his eyes. The walking dead. The running dead. "Sorry," the man mumbles and speeds on. "Truth!" Dillon cries after him. "Love! Loosen up! Top a lot!" He laughs. But what good does it do; the Roman will not laugh with him. Others of his kind come rushing down the corridor, their leaden bodies absorbing the last vibrations of Dillon's exclamations. "Truth! Love!" Blurred sounds, fading, graying, going. Gone. *I will entertain you tonight*, he tells them silently. *I will drive you out of your wretched minds and you will love me for it. If I could only burn your brains! If I could only singe your souls!*

He thinks of Orpheus. *They would tear me apart*, he realizes, *if I ever really reached them.*

He saunters toward the sonic center.

Pausing by the elbow-bend of the corridor, still halfway around the building from the auditorium, Dillon feels a sudden ecstatic awareness of the splendor of the urbmon. A frenzied epiphany: he sees it as a spike suspended between heaven and earth. And he is almost at the midway point right now, with a little more than five hundred floors over his head, a little less than five hundred floors under his feet. People moving around, copulating, eating, giving birth, doing a million blessworthy things, each one out of 800-how-many-thousand traveling in his own orbit. Dillon loves the building. Right now he feels he could almost soar on its multiplicity the way others might soar on a drug. To be at the equator, to drink the divine equilibrium—oh, yes, yes! But of course there is a way to experience the whole complexity of the urbmon in one wild rush of information. He has never tried it; he is not really heavy on groovers and has stayed away from the more elaborate drugs, the ones that open your mind so wide that anything can wander in. Nevertheless, here in the middle of the urbmon, he knows that this is the night to try the multiplexer. After the performance. To pop the pill that will allow him to drop the mental barriers, to let the full immensity

of Urban Monad 116 interpenetrate his consciousness. Yes. He will go to the 500th floor to do it. If the performance goes well. Nightwalking in Bombay. He really should turn on in the city where tonight's concert will be held, but Rome goes no farther down than the 521st floor and he must go to the 500th. For the mystic symmetry of the thing. Even though it is still inexact. Where is the true midpoint in a building of a thousand floors? Somewhere between 499 and 500, no? But the 500th floor will have to do, We learn to live with approximations.

He enters the sonic center.

A fine new auditorium, three stories high, with a toadstool of a stage in the center and audience webs strung concentrically around it. Lightglow drifts in the air. The mouths of speakers, set into the domed rich-textured ceilings, pucker and gape. A warm room, a good room, placed here by the divine mercy of Louisville to bring a little joy into the lives of these bleak juiceless Romans. There is no better hall for a cosmos group in the entire urbmon. The other members of the group are here already, tuning in. The comet-harp, the incantator, the orbital diver, the gravity-drinker, the doppler-inverter, the spectrum-rider. Already the room trembles with shimmering plinks of sound and jolly blurts of color, and a shaft of pure nonreferent texture, abstract and immanent, is rising from the doppler-inverter's central cone. Everyone waves to him. "Late, man," they say, and, "Where you been?" and, "We thought you were skimming out," and he says, "I've been in the halls, peddling love to the Romans," which shatters them into strands of screeching laughter. He clambers onto the stage.

II

HIS instrument sits untended near the perimeter, its lattices dangling, its lovely gaudy skin unilluminated. A lifting machine stands by, waiting to help him put it in its proper place. The machine brought the vibrastar to the auditorium; it would also tune it in for him, if he asked it to, but of course he will not do that. Musicians have a mystique about tuning in their own instruments. Even though it will take him at least two hours to do it and the machine could do it in ten minutes. Maintenance workers and other humbles of the grubbo class have the same mystique. Not strange: one must battle constantly against one's own obsolescence, if one is going to go on thinking of oneself as having a purpose in life.

"Over here," Dillon tells the machine.

Delicately it brings his vibrastar to the output node and makes the

connection. Dillon could not possibly have moved the immense instrument. He does not mind letting machines do the things humans were never meant to do, like lifting three-ton loads. Dillon puts his hands on the manipulatrix and feels the power thrumming through the keyboard. Good. "Go," he tells the machine, and silently it slides away. He kneads and squeezes the projectrons of the manipulatrix. As if milking them. Sensual pleasure in making contact with the machine. A little orgasm with every crescendo. Yeah. Yeah. Yeah.

"Tuning in!" he warns the other musicians.

They make feedback adjustments in their own instruments; otherwise the sudden surge of his entrance might damage both instruments and players. One by one they nod their readiness to him, the gravity-drinker lad chiming in last, and finally Dillon can let out the clutch. Yeah! The hall fills with light. Stars stream from the walls. He coats the ceiling with dripping nebulae. He is the basic instrument of the group, the all-important continuo, providing the foundation against which the others will do their things. With a practiced eye he checks the focus. Everything sharp. Nat the spectrum-rider says, "Mars is a little off-color, Dill." Dillon hunts for Mars. Yes. Yes. He feeds it an extra jolt of orange. And Jupiter? A shining globe of white fire. Venus. Saturn. And all the stars. He is satisfied with the visuals.

"Bringing up the sound, now," he says.

The heels of his hands hit the control panel. From the gaping speakers comes a tender blade of white noise. The music of the spheres. He colors it now, bringing up the gain on the galactic side, letting the stellar drift impart plangent hues to the tone. Then, with a quick downward stab on the projectrons, he kicks in the planetary sounds. Saturn whirls like a belt of knives. Jupiter booms. "Are you getting it?" he calls out. "How's the clarity?" Sophro the orbital diver says, "Fat up the asteroids, Dill," and he does it, and Sophro nods, happy, his chins trembling in pleasure.

After half an hour of preliminary maneuvers Dillon has his primary tuning finished. So far, though, he has done only the solo work. Now to coordinate with the others. Slow, delicate work: to reach reciprocity with them one by one, building a web of interrelationship, a seven-way union, Plagued all the way by heisenberging effects, so that a whole new cluster of adjustments has to be made each time another instrument is added to the set. Change one factor, you change everything; you can't just hold your own while

keying in more and more and more output. He takes on the spectrum-rider first. Easy. Dillon gives forth a shower of comets and Nat modulates them pleasantly into suns. Then they add the incantator. A slight stridency at first, quickly corrected. Good going. Then the gravity-drinker. No problem. The comet-harp, now. Rasp! Rasp! The receptors go bleary and the entire thing falls apart. He and the incantator have to retune separately, rejoin, bring the comet-harp into the net again. This time all right. Great plummy curves of tone go lalloping through the hall. Then the orbital diver. Fifteen sweaty minutes; the balances keep souring. Dillon expects a system collapse any second, but no, they hang on and finally get the levels even. And now the really tough one, the doppler-inverter, which threatens always to clash with his own instrument because both rely as much as visuals as audio, and both are generators, not just modulators of someone else's playing. He almost gets it. But they lose the comet-harp. It makes a thin edgy whining sound and drops out. So they go back two steps and try again. Precarious balance, constantly falling off. Up till five years ago, there had been only four instruments in cosmos groups; it was simply too difficult to hold more than that together. Like adding a fourth actor in Greek tragedy: an impossible technical feat, or so it must have seemed to Aeschylus. Now they were able to coordinate six instruments reasonably well, and a seventh with some effort, by sending the circuit bouncing up to a computer nexus in Edinburgh, but it is still a filther to put them all in synch. Dillon gestures madly with his left shoulder, encouraging the doppler-inverter to get with it. "Come on, come on, come on, come *on*!" and this time they make it. The time is 1840. Everything sticks together.

"Let's run it through, now," Nat sings out. "Give us an A for tuning, maestro."

DILLON hunches forward and clutches the projectrons. Feeds power. Gets a sensory shift; the knobs abruptly feel like the cheeks of Electra's buttocks in his hands. Smiles at the sensation. Firm, bouncy, cool. Up we go! And gives them the universe in one sizzling blare of light and sound. The hall swims with images. The stars leap and cross and mate. The incantator man picks up his sonics and does his trick, enhancing, multiplying, intensifying, until the whole urbmon shakes. The comet-harp makes bleeping blurting loops of dizzying counterpoint and starts to rearrange Dillon's constellations. The orbital diver, hanging back, makes a sudden plunge at an unexpected moment, and dials spin

on everybody's control panel, but it is such a devastating entry that Dillon inwardly applauds it. The gravity-drinker smoothly sucks tone. Now the doppler-inverter goes at it, shooting up its own shaft of light, which sizzles and steams for perhaps thirty seconds before the spectrum-rider grabs it and runs with it, and now all seven of them are jamming madly, each trying to put the others on, shooting forth such a welter of signals that the sight must surely be visible from Boswash to Sansan.

"Hold it! Hold it! Hold it!" Nat screams. "Don't waste it! Man, *don't waste it!*"

And they cut out of phase and go down and sit there idling, sweaty, nerves twinkling. Withdrawal pain; it hurts to step away from such beauty. But Nat is right: they mustn't use themselves up before the audience gets here.

Dinner break, right on stage. No one eats much. They leave the instruments tuned and running, of course. Lunacy to disrupt the synch after working so hard to get it right. Now and then one of the idling instruments flares past its threshold and emits a blob of light or a squeak of sound. *They'd play themselves if we'd only let them*, Dillon thinks. It might just be a wild soar to turn everything on and sit back, doing nothing, while the instruments themselves gave the concert, self-programed. You'd get some strange percepts then. The mind of the machine. On the other hand it might be a hell of a dropper to find out you were superfluous. How frail is our prestige. Celebrated artists today, but let the secret sneak out and we'll all be pushing junk buckets in Reykjavik tomorrow.

The audience begins to show up at 1945. An older crowd; since this is the first night of the Rome run, the rules of seniority have governed the distribution of tickets and the under-20s have been left out. Dillon, midstage, does not trouble to hide his scorn for the gray, baggy people settling into the audience webs all around him. Will the music reach them? Can anything reach them? Or will they sit passively, not even going halfway out to the performance? Dreaming of making more littles. Ignoring the sweating artists; taking up a good seat and getting nothing from the fireworks about them. *We throw you the whole universe and you don't catch. Is it because you're old?* How much can a plumpish many-mother, 33 years old, pull from a cosmos show? No, it isn't age. In the more sophisticated cities there's no problem of audience response, young or old. No, it's a matter of your basic attitude toward the world of art. At the bottom of the building, the grubbos respond with their eyes, their guts, their balls. Either

they're fascinated by the colored lights and the wild sounds, or else they're baffled and hostile, but they aren't indifferent. In the top levels, where the use of the mind is not only permitted but desired, they reach out for the show, knowing that the more they bring to it, the more they get from it. And isn't that what life is all about, to wring all the sensory percepts you can out of the outputs drifting past your head? What else is there? But here, here in the middle levels, all the responses are dulled. The walking dead. The important thing is *being present in the auditorium*, grabbing that ticket away from someone else, showing off. The performance itself doesn't matter. That's just noise and light, some crazy kids from San Francisco having a workout. So there they sit, these Romans, disconnected from skull to crotch. What a joke. Romans? The real Rome wasn't like that, you bet. Calling their city Rome is a crime against history. Dillon glares at them. Then, overfocusing his eyes, he deliberately blurs them out; he does not want to see their flabby gray faces, for fear the sight of them will color his performance. He is here to give. If they can't take, tough.

"Let's go up now," Nat murmurs. "Ready, Dill?"

HE IS ready. He brings his hands up for a virtuoso pounce and slams them down on the projectrons. The old headblaster! Moon and sun and planets and stars come roaring out of his instrument. The whole glittering universe erupts in the hall. He doesn't dare look at the audience. Did he rock them? Are they gasping and tugging at their droopy lower lips? Come on, come on, come on! The others, as if sensing that he's into something special, let him take an introductory solo. Furies fly through his brain. He jabs the manipulatrix. Pluto! Saturn! Betelgeuse! Deneb! Here sit people who spend their whole lives locked inside a single building; give them the stars in one skullblowing rush. Who says you can't start with your climax? The power drain must be immense; lights must be dimming all the way to Chicago. What of it? Did Beethoven give a damn about the power drain? There. There. There. Throw stars around. Make them shimmer and shake. An eclipse of the sun—why not? Let the corona crackle and fry. Make the moon dance. And bring up the sound, too, a great heaving pedalpoint that sneaks up the webbing at them, a spear of 50-cycle vibration nailing their guts. Help them digest their dinner. Shake up all the old waste clogging the colon. Dillon laughs. He wishes he could see his face now; something demonic, maybe. How long is the solo going to last? Why don't they

pick up on him, now? He's going to burn out. He doesn't mind, throwing himself into the machine like that, except for the faint paranoid feeling that the others are deliberately allowing him to strain past his limits so he'll injure himself. The rest of his life sitting like a slug, going booble-booble-booble. Not me! He pulls out all the stops. Fantastic! He's never done things like this before. It must be his rage at these dull Romans that is inspiring him. And all of it wasted on them. Slot that, though: what counts is what's happening inside him, his own artistic fulfillment. If he can blow their skulls, that's a bonus. But this is ecstasy. The whole universe is vibrating around him. A gigantic solo. God himself must have felt this way when he got to work on the first day. Needles of sound descending from the speakers. A mighty crescendo of light and tone. He feels the power surging through himself; he is so happy with what he is doing that he grows hard below, and tips himself back in his seat. Has anyone ever done something like this before, this improvised symphony for solo vibrastar? Hello, Bach! Hello, Mick! Hello, Wagner! Shoot your skulls! Let it all fly! He is past the crest, starting to come down now, no longer relying on raw energy but dabbling in subtler things, splashing Jupiter with golden splotches, turning the stars into icy white points, bringing up little noodling ostinati. He makes Saturn trill: a signal to the others. Who ever heard of opening a concert with a cadenza? But they pick up on it.

Ah, now. Here they come. Gently the doppler-inverter noodles in with a theme of its own, catching something of the descending fervor of Dillon's stellar patterns. At once the comet-harp overlays this with a more sensational series of twanging tones that immediately transmute themselves into looping blares of green light. These are seized by the spectrum-rider, who climbs up on top of them and, grinning broadly, skis off toward the ultra-violet in a shower of hissing crispness. Old Sophro now does his orbital dives, a swoop and a pickup followed by a swoop and a pickup again, playing against the spectrum-rider in the kind of cunning way that only someone right inside the meshing group can appreciate. Then the incantator enters, portentous, booming, sending reverberations shivering through the walls, heightening the significance of the tonal and astronomical patterns until the convergences become almost unbearably beautiful. It is the cue for the gravity-drinker, who disrupts everybody's stability with wonderful wild liberating bursts of force. By this time Dillon has retreated to his proper place as the coordinator and uni-

fier of the group, tossing a skein of melody to this one, a loop of light to that one, embellishing everything that passes near him. He fades into the undertones. His manic excitement passes; playing in a purely mechanical way, he is as much listener as performer, quietly appreciating the variations and divagations his partners are producing. He does not need to draw attention now. He can simply go *oomp oomp oomp* the rest of the night. Not that he will; the construct will tumble if he doesn't feed new data every ten or fifteen minutes. But this is his time to coast.

Each of the others takes a solo in turn. Dillon can no longer see the audience. He rocks, he pivots, he sweats, he sobs; he caresses the projectrons furiously; he seals himself in a cocoon of blazing light; he juggles alternations of light and darkness. The rod in his pants has softened. He is calm at the eye of the storm, fully professional, quietly doing his work. That moment of ecstasy seems to belong to some other day, even to some other man. How long had the solo lasted, anyway? He has lost track of the time. But the performance is going well, and he leaves it to methodical Nat to keep watch of the hour.

AFTER its frenzied opening the concert has settled into routine. The center of the action has shifted to the doppler-inverter man, who is spinning off a series of formula flashes. Quite nice, but stale stuff, over-rehearsed, unspontaneous. His offhandedness infects the others and the whole group vamps for perhaps twenty minutes, going through a set of changes that numb the ganglia and abort the soul, until finally Nat spectacularly shrieks through the whole spectrum from someplace south of infrared into what, for anyone can tell, may be the X-ray frequencies, and this wild takeoff not only stimulates a rebirth of inventiveness but also signals the end of the show. Everybody picks up on him and they blast free, swirling and floating and coming together, forming one entity with seven heads as they bombard the flaccid data-stoned audience with mountains of overload. Yes yes yes yes yes. Wow wow wow wow wow. Flash flash flash flash flash. Oh oh oh oh oh. Come come come come come. Dillon is at the heart of it, tossing off bright purple sparks, pulling down suns and chewing them up, and he feels even more plugged in than during his big solo, for this is a joint thing, a blending, a merging, and he knows that what he is feeling now explains everything: this is the purpose of life, this is the reason for it all. To tune in on beauty, to plunge right to the hot source of creation, to open your soul and let it all in and

let it all out again, to give to give to give to give

to give

to give

and it ends. Pull the plug. They let him have the final chord and he cuts off a skullblower, a five-way planetary conjunction and a triple fugue, the whole showoff burst lasting no more than ten seconds. Then down with the hands and off with the switch and a wall of silence rises ninety kilometers high. This time he's done it. He's emptied everybody's skull. He sits there shivering, biting his lip, dazed by the house-lights, wanting to cry. He dares not look at the others in the group. How much time is passing? Five minutes, five months, five centuries, five megayears? And at last the reaction. A stampede of applause. All of Rome on its feet, yelling, slapping cheeks—the ultimate tribute, four thousand people struggling out of their comfortable webs to pound their palms against their faces—and Dillon laughs, throwing back his head, getting up himself, bowing, holding his hands out to Nat, to Sophro, to all six of them. Somehow it was better tonight. Even these Romans know it. What did they do to deserve it? By being such lumps, Dillon tells himself, they drew forth the best we had in us. To turn them on. And we did. We knocked them out of their miserable soggy skulls.

The cheering continues.

Fine. Fine. We are great artists. Now I've got to get out of here, before I come down from it all.

III

HE NEVER socializes with the rest of the group after a performance. They have all discovered that the less they see of each other in leisure hours, the more intimate their professional collaboration will be; there is no intragroup friendship, not even intragroup sex. They all feel that would be death, any kind of coupling, hetero, homo, triple-up—save that for outsiders. They have their music to unite them. So he goes off by himself. The audience starts to flow toward the exits and, without saying good night to anybody, Dillon steps into the artists' trapdoor and makes his escape one level down. His clothes are stiff and wet with perspiration, clammy, uncomfortable. He must do something about that quickly. Prowling along the 529th floor for a dropshaft, he opens the first apartment door he comes to and finds a couple, sixteen, seventeen years old, squatting before the screen. He naked, she wearing only breastcoils, both of them plainly soaring on one of the harder ones, but not so high that they can't recognize him. "Dillon Chrimes!" the girl gasps, her squeal waking two or three littles.

"Hey, hello," he says. "I just have to use the cleanser, okay? Don't let me disturb you. I don't even want to talk, you know? I'm still way up." He strips off his sodden clothes and gets under the cleanser. It hums and rumbles and peels his grime from him. He lets it work on his clothes next. The girl is creeping toward him. She has the breastcoils off; the white imprints of the metal on her pink dangling flesh are turning rapidly red. Kneeling before him. Hand goes to his thighs. "No," he says. "Don't."

"But why?"

"Just wanted to use the cleanser. Couldn't stand my own stink. I've got to do my nightwalking on 500 tonight." Her fingers sliding between his legs. Gently he pries them. Back into his clothing; the girl looks on, astonished, as he covers himself.

"You aren't going to?" she asks.

"Not here. Not here." She continues to blink at him as he goes out. Her look of shock saddens him. Tonight he must go to the middle of the building, but tomorrow, for sure, he will come to her, and he'll explain everything then. He makes a note of the room number. 52908. Nightwalking is supposed to be random, but to hell with that; he owes her a thrill. Tomorrow.

In the hall he finds a groover dispenser and requisitions his pill, tapping his metabolic coefficient out on the console. He orders a multiplexer, said to be one of the most profound trips available. His first attempt with it. The machine performs the necessary calculations and delivers a five-hour dose, timed to go off in twelve minutes, according to the yellow wrapper. Printed in bold black letters on the wrapper is: CAUTION! THIS DRUG ENHANCES TELESENSORY INPUT. NOT RECOMMENDED FOR USE BY PERSONS WHOSE ESP QUOTIENT EXCEEDS .55. Dillon shrugs. It'll be all right; he's no telepath. Though the drug will briefly make him one. He swallows it and steps into the dropshaft.

Floor 500.

AS CLOSE to halfway as he can get. A metaphysical fancy, but why not? He has not lost the capacity to play games. We artists remain happy because we remain as children. Eleven minutes to his high. He goes down the corridor, opening doors. In the first room he finds a man, a woman, another man. "Sorry," he calls. In the second room three girls. Momentarily tempting, but only momentarily. Anyway, they look fully busied with each other. "Sorry, sorry, sorry." In the third room a middle-aged couple; they give him a hopeful stare, but he backs out.

Fourth time lucky. A dark-

haired girl, alone, pouting a little. Obviously her husband is out nightwalking and no one has come to her, a statistical fluke that distresses her. Early twenties, Dillon guesses, with fine tapering nose, glossy eyes, elegant breasts, olive skin. The flesh over her eyelids is puffy, which may become a flaw of appearance ten years from now but which gives her a sultry, sensual look at the moment. She has been brooding for hours, he guesses, because her sullenness does not evaporate until he has actually been in the room fifteen seconds or so; she is slow to realize that she is being nightwalked with. "Hello," he says. "Smile? Won't you smile a little?"

"I know you. The cosmos group?"

"Dillon Chrimes, yes. On the vibrastar. We're playing Rome tonight."

"Playing Rome and nightwalking Bombay?"

"What the hell. I have philosophical reasons. To be in the middle of the building, you know? Or as close as I can come. Don't ask me to explain." He looks around the room. Six littles. One of them, awake, is at least nine years old, a skinny girl with her mother's olive skin. Mother isn't as young as she looks, then. At least twenty-five, maybe. Dillon doesn't mind. In a little while he'll be groping the whole urbmon, anyway, all ages, sexes, shapes. He says, "I have to tell you about my trip. I'm on a multiplexer. It'll hit me in six minutes."

She puts her hand to her lips. "We don't have much time, then. You ought to be with me before you go up."

"Is that the way they work?"

"Don't you know?"

"I've never gone that way before," he confesses. "Never got around to it."

"Neither have I. I didn't think anybody actually did take multiplexers, really. But I've heard of what you're supposed to do." She is disrobing as she talks. Heavy breasts, big dark circles around the nipples. Her legs strangely thin; when she stands straight the insides of her thighs are far apart. There is a folkmyth of some sort about girls built that way, but Dillon cannot remember it. He drops his clothes. The drug has started to get to him, several minutes ahead of schedule—the walls are shimmering, the lights look fuzzy. Odd. Unless the fact that he was already way up from performing should have been calculated into the dosage request. The metabolism turned to high, maybe, on nothing but sound and light. Well, no harm done. He moves toward the sleeping platform. "What's your name?" he asks.

"Alma Clune."

"I like the sound of that. Al-

ma." She takes him into her arms. This will not be an extraordinary erotic experience for her, he fears. Once the multiplexer takes hold, he doubts that he can concentrate properly on her needs—and in any case the time element has made it necessary to skip all preliminaries. But she seems to be understanding. She will not spoil his trip. He covers her body with his. "Are you grooving yet?" she asks.

He is silent a moment. "I feel it starting," he tells her. "It's like having two girls at once. I'm getting echoes." Tension. The multiplexing must still be ninety seconds away. All these calculations chill him. And then they become pointless. "It's happening," he whispers. "Oh, god, here I go up!"

MULTIPLEXING now. His spirit is spreading out. The drug makes him psychosensitive; it breaks down his brain's chemical defenses against direct telepathic input, so that he can perceive the sensory intake of those around him. Reaching wider and wider, moment by moment. At the full high, they say, everyone's eyes and ears become your own; you pick up an infinity of responses, you are everywhere in the building at once. Is it true? Are other minds pouring their intake through his? It does seem so. He watches the fluttering fiery mantle of his soul engulf and absorb Alma. That's just the beginning. He is spreading over Alma's littles now. He is six children and their mother. How easy this is! He is the family next door. Eight littles, mother, nightwalker from the 495th floor. He extends his reach upward one level. And downward. And along the corridors. In dreamy multiplexication he is taking possession of the whole building. Layers of drifting images enshroud him. 500 floors above his head, 499 below, and he sees all 999 of them as a column of horizontal striations, tiny notches on a tall shaft. With ants. And he is all the ants at once. Why has he never done this before? To become an entire urbmon!

He must reach at least twenty floors in each direction now. And still spreading out. Tendrils of him going everywhere. Just the beginning. Intermingling his substance with the totality of the building.

He is dimly aware of Alma but only one atom of himself is occupied with her. The rest is roaming the halls of the cities that make up Urban Monad 116. Entering every room. Part of him up in Boston, part of him down in London, and all of him in Rome and Bombay as well. Hundreds of rooms. Thousands. The swarm of biped bees. He is fifty squalling littles crammed into three London rooms. He is two doddering Bostonians entering

upon their five thousandth sexual congress. He is a hot-blooded thirteen-year-old nightwalker prowling the 483rd floor. He is six swapping couples in a London dorm. Now he is into a wider range, reaching down to San Francisco, up to Nairobi. The farther he goes, the easier it gets. The hive. The mighty hive. He embraces Tokyo. He embraces Chicago. He embraces Prague. He touches Shanghai. He touches Vienna. He touches Warsaw. He touches Toledo. Paris! Reykjavik! Louisville! *Louisville!* Top to bottom, top to bottom! Now he is all 880,000 people on all thousand floors. His soul is stretched to its fullest. His skull is snapping. The images come and go across the screen of his mind, drifting films of reality, oily wisps of smoke bearing faces, eyes, fingers, smiles, tongues, elbows, profiles, sounds, textures. Gently they mesh and lock and drift apart. He is everywhere and everyone at once. God bless! For the first time he understands the nature of the delicate organism that is society; he sees the checks and balances, the quiet conspiracies of compromise that paste it all together. And it is wondrously beautiful. Tuning this vast city of many cities is just like tuning the cosmos group: everything must relate, everything must belong to everything else. The poet in San Francisco is part of the grubbo stoker in Reykjavik. The little snotty ambition-monger in Shanghai is part of the placid defeated Roman. How much of this, Dillon wonders, will stay with him when he comes down? His spirit whirls. He grooves on thousands of souls at once.

And the sexual thing. The hundred thousand transactions taking place behind his forehead. He loses his virginity; he takes a virginity; he is aggressor and aggressed.

HE RIDES the liftshafts of his mind. Going up! 501, 502, 503, 504, 505! 600! 700! 800! 900! He stands on the landing stage at the summit of the urbmon, staring out into the night. Towers all around him, the neighboring monads, 115, 117, 118, the whole crowd of them. Occasionally he has wondered what life is like in the other buildings that make up the Chipitts constellation. Now he does not care. There is wonder enough in 116. More than 800,000 intersecting lives. He has heard some of his friends say, in San Francisco, that it was an evil deed to change the world this way, to pile up thousands of people in a single colossal building, to create this beehive life. But how wrong those mutterers are! If they could only multiplex and get true perspective. Taste the rich complexity of our vertical existence. Going down! 480, 479, 476, 475! City up-

on city. Each floor holding a thousand puzzleboxes of pure delight. *Hello, I'm Dillon Chrimes, can I be you for a while? And you? And you? And you? Are you happy? Why not? Have you seen this gorgeous world you live in?*

What? You'd like a bigger room? You want to travel? You don't like your littles? You're bored with your work? You're full of vague unfocused discontent? Idiot. Come up here with me, fly from floor to floor, see! And groove on it. And love it.

"Is it really good?" Alma asks. "Your eyes are shining!"

"I can't describe it," Dillon murmurs, soaring, threading himself down the service core to the levels below Reykjavik, then floating up to Louisville again, and simultaneously intersecting every point between root and tip. An ocean of broiling minds. A sizzle of snarled identities. He wonders what time it is. The trip is supposed to last five hours. He is still with Alma, which leads him to think he has not been up more than ten or fifteen minutes, but perhaps it is more than that. Things are becoming very tactile now. As he drifts through the building he touches walls, floors, screens, faces, fabrics. He suspects he may be coming down. But no. No. Still on his way up. The simultaniety increases. He is flooded with percepts. People moving, talking, sleeping, dancing, coupling, bending, reaching, eating, reading. *I am all of you. You are all parts of me.* He can focus sharply on individual identities. Here is Electra, here is Nat the spectrum-rider, here is Mamelon Kluver, here is a tight-souled sociocomputator named Charles Mattern, here is a Louisville administra-

GALAXY congratulates THEODORE STURGEON, whose

SLOW SCULPTURE

(Galaxy, February 1970)

was given the NEBULA award as the Best Science Fiction Novelette of 1970 by the Science Fiction Writers of America

tor, here is a Warsaw grubbo, here is. Here is. Here are. *Here am I.* The whole blessing building.

Oh what a beautiful place. Oh how I love it here. Oh this is the real thing. Oh!

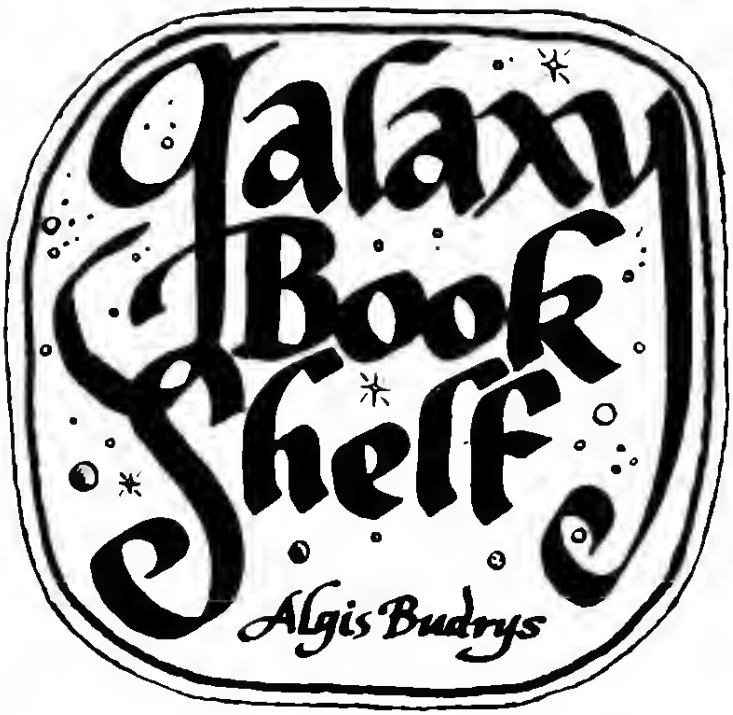
WHEN he comes down, he sees the dark-haired woman curled in a corner of the sleeping platform, asleep. He cannot remember her name. He touches her thigh and she awakes quickly, eyes fluttering. "Hello," she says. "Welcome back."

"What's your name?"

"Alma. Clune. Your eyes are all red."

He nods. He feels the weight of the whole building on him. 500 floors jamming down on his head, 499 floors pressing up against his feet. The meeting place of the two forces is somewhere close to his pancreas. If he does not leave here quickly, his internal organs must surely pop. Only shreds of his trip remain. Straggly streamers of debris clutter his mind. Vaguely he feels columns of ants trekking from level to level behind his eyes.

Alma reaches for him. To comfort him. He shakes her off and hunts for his clothing. A cone of silence surrounds him. He will go back to Electra, he thinks, and try to tell her where he has been and what has been happening to him, and then perhaps he will cry and feel better. He leaves without thanking Alma for her hospitality and looks for a dropshaft. Instead he finds a liftshaft, and somehow, pretending it is an accident, he gets off at 530. Heading for Rome's sonic center. Dark there. The instruments still on stage. Quietly he slips down in front of the vibrastar. Switches it on. His eyes are wet. He dredges up some phantom images of his trip. The faces, the thousand floors. The ecstasy. Oh, what a beautiful place. *Oh, how I love it here. Oh, this is the real thing. Oh!* Certainly he felt that way. But no longer. A thin sediment of doubt is all that remains. Asking himself: Is this how it was meant to be? Is this how it has to be? Is this the best we can do? This building. This mighty hive. Dillon's hands caress the projectrons, which feel prickly and hot; he depresses them at random and sour colors drift out of the instrument. He cuts in the audio and gets sounds that remind him of the shifting of old bones within flabby flesh. What went wrong? He should have expected it. You go all the way up, then you come all the way down. But why does down have to be so far down? He cannot bear to play. After ten minutes he switches off the vibrastar and goes out. He will walk to San Francisco. 160 floors down. That's not too many levels; he'll be there before dawn. ★



IF YOU take Rene Barjavel's *The Ice People* (Morrow, $5.95) and reduce it to its essentials, you get pure soap opera. But this book is not for skeletonizing; it is for reading, and as reading it's superb. For once a jacket blurb is borne out: I *couldn't* put it down, despite the fact that no less a source than *Le Magazine Litteraire** challenged me to do so.

What we have here, cadets, is a spiffy colloquial English translation by Charles Lam Markmann of a story that owes rather more to Georges Simenon than it does to Jules Verne. It crackles along like a lit fuse. Though you realize rather early that Barjavel has not laid his charge under anything profound, and furthermore can see the way the cards are going to tumble when the keg fizzes up, he takes care to do the thing you have to do in a pulp suspense novel—he peoples his story solely with characters for whom bathos and tragedy are the same thing. So, for as long as you're still reading, harsh judgment does not intrude and the experience goes down whole in one tingling morsel.

The book comes to us with all sorts of assurances that it sold 300,000 copies in France, where it was "*a* Number One best seller" (italic mine), but don't let that put you off. Jean Rostand of the Academie Francaise (like the voice of the Wizard of Oz) declares that "Barjavel places before each man the problem of the meaning of life." Pay no attention to that,

*Shouldn't that be either La Magazine or Le Magazin? Is it on sale at Le Drugstore?

either. As we both know, the proposition that writers have these unique abilities is nonsense on the face of it; furthermore, Barjavel's interest is confined to telling us how two people got placed in suspended animation 900,000 years ago in a place that's now down in the rock under Antarctica and what's involved in their discovery, revival, and utilization in 20th Century society.

Judging by the way this book is being packaged—Marc Slonim is cited on the back cover, saying: ". . . the author's ironic references to our 'post-Gutenberg, pre-Apocalyptic' era" (those are synthesized quasi-quotes from McLuhan, not from Barjavel's text)—a serious attempt is being made to give this volume some kind of "relevance," panache, and withinness. If you approach it from that route, you'll be disappointed. It's boy-meets-girl, boy-freezes-girl, is what it is, and it's one of the best science-fiction suspense novels of the year.

IT'S a bit late—later than usual—but I'd like to review Clifford D. Simak's Doubleday ($4.95) collection, *Best Science Fiction Stories of Clifford D. Simak.*

Cliff Simak would be as shocked as I'd be if I were to assert that he's a towering literary figure, in this field or any other. He's something other than that—in this field and in at least one other; he's a charitable, observant, gentle man of acumen and professional skill. When he exercises his profession these qualities have the effect of making the reader feel good to be in the company of the people in Cliff Simak's stories.

This is a rare way to go about holding the reader's interest. Lester del Rey can do it and sometimes chooses to; what Ted Sturgeon does is only superficially like it; Isaac Asimov has done it now and again. But Simak does it in all his successful stories, perhaps with some deliberateness which might yield to technical analysis; mostly, I'd think, because that's the kind of guy he is.

You may know—if you've been around, because Simak has been with us for a long time—that several paces back before World War II he was the author of formula stories with only flashes of individuality. Then something happened; maybe getting a raise at the paper, so the economic pressure was off his freelancing, maybe the War itself, maybe maturity. Whatever it was, it produced a series of heart-wrenchingly effective stories in the *Astounding* of the early 1940s. I will tell you frankly that I used to get my face beaten in for sitting in the schoolbus and weeping over an opened copy of a pulp magazine. (Actually, I got my face beaten in for my

reaction to the reaction to my sitting there weeping, etc., which may go toward proving my contention that what's important is what happens in the reader, not on the paper).

Anyway, this flowering of Simak's ability is still his major period. During this time he wrote the series that was collected as the book *City*, plus a number of semi-related and unrelated stories which all bore this hallmark of an all-embracing honest compassion for even the lowliest and most compulsive of the creatures in his imagination. Then he dropped out for a while—again, I don't know why—and came back for the one triumph he had not enjoyed before. He had proved himself with those novelettes and short stories. Now the author of the pre-War *Cosmic Engineers*—believe me, it's like what it sounds—started *Galaxy* off in life with what this magazine called *Time Quarry*; the book version is *Time and Again*, the novel about Asher Sutton, the Messiah-figure I rather prefer to Valentine Smith. In that book are a number of striking parallels to *Stranger in a Strange Land*, as there would be in any Messiah story. It's not written to turn you on to anything, either; it's simply a notably strong, well-told, science-fiction story of great ingenuity and compassion.

And that was in the early 1950s.

Since then, Simak has written a number of short stories and novelettes for diverse places, most of them for *Galaxy*, I believe. He's written other novels, none of them with *Time and Again*'s all-of-a-piece excellence. He won a Hugo in 1964 for *Way Station*—there were no Hugos in 1951—and all in all, according to the flyleaf on this latest collection, he has nineteen different first editions of his own books on a shelf somewhere in his mind.

What he is, when you come down to it, is a man who has contributed a lot to this field over a long period of time, not making many big splashes, but getting the job done; reaching the reader, and boosting the field at least some little way up the ladder. (What's expressed in Simak's most famous last line: " . . . and me back into a man" is a dynamite concept to have thrown out into the field as it was in the 1940s. There were quite a few who never forgot it, and at least one editor who really didn't like the basic proposition once it had soaked in).

So that's my review of *Best Science Fiction Stories of Clifford D. Simak*. These are not Cliff's best—there are seven of them in the book, and *Founding Father*, from a 1957 *Galaxy*, is the one that most closely captures the effect of what Simak could do to you if he wanted to—but that doesn't make

them bad, or inconsiderable. They are professional writing from an uncommon man who is at once archetypal of the good side of the commercial writer and nearly unique in his major professional strength as displayed here. Some of the plots are thin. Some of the incidents are trivial. All of it repays reading and repays in an especially gratifying kind of coin.

OF ALL the people in this column, David Compton is the one who is actively and continuously trying to make something larger out of the story he happens to be telling; you can feel the pressure at your elbow.

In *Synthajoy*, this trait was subtly exercised; although you did not love her, the heroine of this book about neurostimulation was a stunningly characterized person, and exactly the character through whom that story ought to have been told. But then, after a while we got *The Steel Crocodile*, which is very nearly a parody of *Synthajoy*, and which made it rather clear that *Synthajoy* was not about neurostimulation; like *Crocodile*, and like an intervening minor book, *The Silent Multitude*, it was about Man's inability to cope sanely with the facts of the Universe. So, too, is Compton's latest Ace Special (*Chronocules*, #10480, 75¢).

That's a proposition you have to consider. Maybe the world *is* too big a place for even the mightiest cosmic engineer; if so, then it follows that no one can grasp any part of it by the correct handle except in moments of pure luck which are soon dissipated or crushed either by the simple turning of the grand wheel or by the conflicting obsessions of more powerful individuals. Then it may follow that there is no salvation in anything, and the sane course is to live decently and unambitiously —presumably so as to minimize the dynamic attentions of others, since the wheel will turn where it wills in any case.

A review of Compton's Ace books will show that common denominator. Illusion applied directly to the brain is a trap; the edifice of Faith can not sustain the Faithful; the mechanical Messiah will save only himself; and in *Chronocules* we have it that there's no place to hide, not even in the whispering galleries of time itself.

But there's a loophole in each of these books. *If* the heroine of *Synthajoy* had been more stable, and if her lover and her husband hadn't acted in exactly the way they did . . . *If* the wife in *The Steel Crocodile* hadn't . . . *If* the heroine of *Chronocules* had . . .

What the analysis seems to yield as the essence of Compton's message to the bemused world is

that technology induces hysteria in women. And that we should probably be grateful, else all sorts of dreadful projects would have come to clanging fruition.

I'd be doing Compton a considerable injustice, by the way, if I implied that he's silly, stupid, untalented, or unskilled. He is the opposite of all that. He may be wrong—whatever it is he's saying, or building up to saying—but he's far from negligible. He's a find for Terry Carr, and he's consistently capable of high performance. *Chronocules* is nearly as good throughout as *Synthajoy* was, and even *Crocodile* had its moments when it was obvious the clay was in a master's hands, for all that it was coming out lopsided.

Nevertheless, I find it remarkable that in Compton's view there is no way to tell a science-fiction story without basing its *dénouement* squarely on the interaction of a power-obsessed male and a sexually tensed female.

In *Chronocules*—which is, if you haven't yet given up hope of finding out from me, the story of a privately endowed attempt to force a way into the future before pollution and disorganization destroy the mother country—the female goes completely crackers, as she did in *Synthajoy*, but in this version she does so in response to her experience of sex *au naturel* from the first simple, uncomplicated, definitely non-technological male she's ever loved in a life of social promiscuity. Whereupon she seizes power, displaces the owner of the establishment, survives the holocaust, and in due time kills her resulting son, to be apprehended with the gun still warm in her hand.

What I'm building up to saying is that the proposition that the world is inevitably too big a place may be a lonely child's fantasy, for all that it has many subscribers among our numbers. That would explain its power, and its ability to encyst such obvious defects as the truck riot scene in *Chronocules* without suffering any diminution of effect.

The scene is a mess. A crowd immobilizes an armored truck and kills the crew inside it. The truck is "impregnably designed" to deliver the research establishment payroll at a time when every crowd is full of hopheads and vandals. It (1) is unarmed, (2) is equipped with pneumatic tires that yield immediately to explosive, despite the fact that the armed services of most nations today have explosion-proof tires, (3) settles immediately on its "brake drums," apparently having no wheels, since Compton speaks eventually of shreds of tire clinging to the "drums," and (4) broils its crew when its roof is sprayed with "heat foam," apparently a

substance which generates heat by expansion and conveys it downward.

The truck also has an "electrified chassis" which shorts out on contact with the street. I wondered, hard, about the wisdom of a defensive measure which not only screws up all your ignition grounds and auxiliary wiring but which is kept from doing attackers any harm, thanks to a protective shroud of apparently unelectrified body sheet metal.

Hence in that scene, crucial to major subsequent events, Compton describes an impossible piece of technology overcome with ludicrous ease by instruments acting in violation of several laws of physics. And yet I must tell you that I could smell and hear that crowd; I *wanted* to believe in that crowd.

You know, when you boil it down, it's a bald affront. The message says you should always stick your thumb in your mouth and draw up your knees. But when you spread the same message over four books—or four hundred books by a hundred different writers at various levels of conscious control over their emissions—it takes longer to grasp, and that's what may be so effective about it. Because it *is* the message we've always wanted to hear. We're just coy about how we want it presented.

Compton may be on to a very good thing.

AND that brings us to *Science Against Man,* (Avon Books #V2374, 75¢), an anthology of original stories which include, among others, John Brunner's *The Invisible Idiot,* whose title is derived from the well-known anecdote about what happens when you retranslate *Out of sight, out of mind,* after feeding it into a computer that translates Chinese.

The editor of this volume is Anthony Cheetham, who presumably came up with the theme and who certainly supplied the sometimes nonsequential editorial comments heading each story. Cheetham is no Lem—he falls headlong for the trap that *Solaris* gingerly clambers into—but the result is the same.

Cheetham has to be one of those people who feels threatened by but fails to distinguish among science, engineering and technology, three different things not of the same kind, and who does somehow differentiate between Man and what men do, none of which are mistakes that Lem's mind will let him commit as gladly.

Until we realize—we all realize—that each of us—each of us—would joyously destroy the entire world, given only the proper circumstances, as well as the means, just as the same each of

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us would willingly transform it into Paradise, again given the circumstances, as well as the means, and until we stop finding in "science" — or what we call God, or politics, or xlkmndfg — some external cause for human nature, not even the Sierra Club will save us, for nothing can save us but reason and, beyond that, an understanding and acceptance of reason, none of which can be imposed, all of which must be found within himself by each of us.

Hence, "science fiction" themes which interfere in this process, no matter in what nobility's name, are contrasurvival; Cheetham's premise is contrasurvival and Cheetham is contrasurvival in this act. Other than that, there's nothing wrong with his book, which contains excellent stories by Brian Aldiss, Harry Harrison and Norman Spinrad, good ones by Piers Anthony, James Blish, John Brunner, Bob Shaw, and Robert Silverberg, and acceptable ones by Paul Ableman, Michael Moorcock, and Andrew Travers. That's quite a batting average.

Of them all, the Silverberg is the most effectively moody, being a series of declarative sentences about a neurotic megalopolitaine who, quite so, eventually reconciles herself to the trauma of being moved into a new building, but only after some rather easy therapy. The Spinrad, on the other hand, is as apparently simplistic and jargon-loaded as his usual piece. This one is about African tourists visiting the noxious remains of smog-choked America. But the detailed breadth of Spinrad's imagination in this example creates that effect which marks excellent fiction; it conveys the sense that the writer unfalteringly believed in every single thing he says happened to his characters.

That seamless strength of authorial conviction—which also occurs in the Aldiss and Harrison—is the one unique capability of fiction as distinguished from propaganda or any other form of philosophical discourse. The author may be wrong, as the essayist may be wrong, but it is difficult to resist the spell of a proposition told against a background whose every precisely placed blade of grass testifies to the consistency of the creator's thinking.

Conversely, of course, when the author can be seen to falter somewhere, his statement may never recover from that stumble over what may in fact have been a minor area or, as in the Silverberg, that proper, obligatory move you'd think could be indicated with a wave of the hand. But it can't. There are no throwaway lines. ✱



Should a talk machine deliver the unspeakable truth?

DUCKWORTH AND THE SOUND PROBE

LARRY EISENBERG

I HAD not seen Duckworth in many weeks. His marriage, after a whirlwind courtship and an around-the-world-tour with his bride, had cut down our contact to a one-sided receipt of post cards from the Temple at Angkor Wat and a long-distance shot of the Tuileries with indecipherable inked greetings. The chemistry department missed him too.

On several occasions students would drift by the computer lab to ask me if I knew of a firm date for Duckworth's return. I shrugged, spread my hands and even sighed. And they understood and left the room silently. Imagine my surprise, then, when Ducksworth telephoned to ask me to join him in his office.

We embraced warmly.

"How is Laura?" I asked.

A beatific smile played about Duckworth's lips.

"If anything could make me chuck science, it's that girl," he said dreamily. Then he shook himself like a wet fox terrier. "But that's neither here nor there," he muttered. He looked at me brightly. "I've got a new idea I'd like to discuss with you."

"Fire away," I said.

"It's an idea that took form during my honeymoon," he said.

I smirked.

"It's not salacious," he said, shaking his head reprovingly. "But it has tremendous possibilities. It combines ideas of physics and chemistry in a rather novel way. In short, I'm talking about the recovery of sounds, old sounds that are buried in the long distant past."

I rubbed my chin.

"That's quite an order," I said. "Even in a medium without absorbing or reflecting boundaries the intensity of the sound falls off as the square of the distance. In any kind of confined space the sound would be absorbed, dispersed, reflected back and forth until literally nothing remained of the original waves."

"That's true in a way," said Duckworth. "But not quite. The sounds can never die completely. In a room, for example, the sounds are still there, batting around, but at such fantastically low energy levels that no detector on Earth could possibly retrieve them. But I think I have a way of getting around that barrier."

I smiled.

"You've done many things I considered impossible," I said. "But this time your reach is way beyond our grasp. I don't think it can be done."

"There are two fundamental problems," said Duckworth, playing with the wispy strands of his skimpy beard. "The first involves sensitivity and the second, noise level. I have a way of achieving sufficient sensitivity to pick up and

amplify the faint sounds. But so far I've been stymied by the submolecular noises of my electronic components."

I nodded.

"Their noisy energy levels are probably much higher than those of the sounds you're trying to retrieve."

"Precisely," said Duckworth. "But suppose I could convert their random fluctuations into an ordered variation that could be filtered out?"

"That's a big suppose," I said.

And there our conversation ended.

SEVERAL weeks later my wife and I were invited over to the Duckworth home to sample Laura's cooking. It was imaginative, even daring, but it wasn't good. The lemon soup had lumps and the Chicken Bangkok was underdone. But I grimly stuffed it into my face and pretended to agree with Duckworth as he raved about his wife's culinary skills. I even toyed with the idea of investing in a rented stomach pump. But I felt to do so would be disloyal to my friends.

It was later that evening, as I was meditatively sucking on my second roll of antacid mints, that Duckworth casually mentioned that he had licked the second part of his sound problem. In my excitement I almost swallowed the mint, whole.

"How did you do it?" I cried.

"It proved to be easier than I thought," said Duckworth modestly. "I cooled my amplifier to almost absolute zero in temperature, reducing noise fluctuations to a minimum. Then I applied accurately controlled magnetic fields to the circuit elements."

"My God!" I said. "You've done it."

"Not quite," said Duckworth. "I'm close but not there yet."

"Then your Sound Probe isn't ready to try out?"

"To tell you the truth," said Duckworth, "I did set it up off campus, last week. It was at the site of an old Chinese restaurant."

"And?"

"I didn't get too much," said Duckworth. "Just a few nasal language sounds. But it pointed up where the next phase of my work lies. I now have the job of selecting a particular sequence of sounds out of uncountable levels of other sounds, unwanted sounds that may have lesser or even greater energy levels."

"It sounds like the proverbial search for a needle in a haystack."

"Something like that," said Duckworth glumly.

"But those Chinese sounds you recovered. My God, man, you should be elated! You've got enough to publish right there."

"I don't know," said Duck-

worth. "It seems a bit premature to me."

"It's never too early to disclose something *that* important," I said.

Duckworth shrugged. Laura, who had come up with some rock-hard cookies she had baked, caught the tail end of my remarks and added her own weight to the argument.

"I agree," she said. "You ought at least to establish your priority in this field."

Before this combined pressure, Duckworth, to his later regret, yielded.

HIS article was brief and titled, *The Sound Probe*. It appeared in Modern Acoustic Letters in less than a page of space and seemed to be missed by the press. But not for long. An astute science reporter caught the possibilities of Duckworth's device and the dam burst. Overnight, he was inundated by waves of reporters, much as he had been in past years. Tiring as the publicity aspect was, it was nothing compared to the stream of visitors who now assailed Duckworth's office with their own special requests.

First came the editor of *Voyeur Magazine*, a journal for funloving men, who asked Duckworth if it would be possible to retrieve conversations from the boudoir of Madame Pompadour.

The second visitor was a well known Protestant evangelist who wished to recover some of the dialogues of Renaissance Popes from their private quarters at the Vatican.

There was also the medium who foresaw the probe as a two-way device that might recover *future* sounds as well as past ones. Duckworth was intrigued by this idea.

"A sort of wedding of Physics and Metaphysics," he mused. "But not even a double-barreled shotgun could carry that one off."

"Why not?" asked the medium happily. So happy was she that it took all of Duckworth's self-control to keep from striking her.

"The equations of motion," she said earnestly, "reveal no forward or backward direction in time. Isn't it conceivable that the sounds of the future are kicking about just as those of the past are?"

"Perhaps," said Duckworth. "It seems to me that even now I can detect your future laments about how ungracious I was in kicking you out of my office."

One of the most trying visitors was Ernest Gudgeon, chairman of the Board of Gudgeon Industries. A roly-poly man who was perpetually mopping his brow with a fine silk handkerchief, he came directly to the point.

"Dr. Duckworth," he said, "your new scheme has possibilities that I'm sure even you haven't thought of."

"No doubt," said Duckworth dryly.

"I refer of course to the rough and tumble world of industrial information gathering."

"Industrial espionage might be more appropriate," said Duckworth.

"It has a pejorative quality," said Gudgeon. "But no matter. What I'm proposing relates to the freer interchange in ideas among American businessmen, a freer interchange that will enable our industries to outstrip all world competitors, East and West."

"I suppose it means visiting conference rooms after meetings, executive washrooms and that sort of thing. I can see myself dressed in blue overalls, twirling the dials of my apparatus over the hoarse sobbing of flushed toilets," said Duckworth.

A FEW weeks later, over an unwatered Jack Daniels at the Faculty Club, Duckworth unburdened his heart to me.

"I had been toying with the idea of abandoning this project. Up to now I've had nothing but grief from it. And just as I'd made up my mind to pull the chain on the Sound Probe, I solved my last problem."

"Picking the right sounds out of all the sounds?" I asked.

"That's it," said Duckworth. "First I store all the sounds that are recovered on magnetic tape in digital form. These sounds are now examined by statistical methods. For example, only those sounds and words which by frequency, sequence, and grammatical construction of the particular language are most probable, will be chosen to be played back. In that way I can pick out the wanted sounds from the unwanted. It's not perfect, but it ought to work well enough."

"It sounds plausible to me," I said. "But I think you have more trouble pending. I was in President Hinkle's office this morning, fighting to keep my budget from being cut in half. Just before I left he got a call from Counterspy, our multibillion dollar Federal agency with the unlisted phone numbers. I think they plan to use the Sound Probe to recover dialogues from foreign embassies."

"That does it," said Duckworth. "I'm going to burn my notes and put an axe to my instrumentation."

"You're copping out," I said. "Besides, your paper contains enough information so that with perhaps an additional year's work, some astute physicist will come up with a working model. Counterspy can get along without your help if they have to."

"I suppose you're right," he said bitterly.

"What's more," I added, "the Sound Probe is probably being evaluated by the espionage services of every country in the world. It may force the suspension of all private political conversations from now on."

Duckworth leaped to his feet.

He cried, "You've done it! You've shown me the way out."

I was delighted but puzzled.

"I have? How?"

Duckworth put his finger to the side of his nose.

"Mum's the word," he said and winked at me.

I PONDERED the meaning of that wink, off and on, for several months. And then I saw the news story on the front page of the *New York Times*.

> Duckworth's Delvers (it said). Emmett Duckworth, Nobel Laureate and eminent biochemist, announced today the forming of a student army of Truthseekers. Equipped with a new portable version of a device he recently perfected which can recover entire conversations from the past, his students will visit every smoke-filled room, the chambers and meeting halls of every legislative body in the United States and even the august committee rooms of the United Nations.
>
> "The Delvers," Dr. Duckworth said, will focus on political deals of every kind with particular emphasis on financial hanky panky. However, illicit private peccadilloes of heads of state will not be overlooked. In addition, similar groups are being formed in Europe and Africa, all armed with the new Duckworth Sound Probe.

I barged into Duckworth's lab and showed him the story. He beamed at me genially.

"I know all about it," he said. "The press spent a couple of days with me earlier in the week. I told them about my miniaturized portable version of the Sound Probe and how I planned to use it. For some reason they seemed to think the item newsworthy."

"For shame, Duckworth," I cried. "Twice a Nobel prize winner and you're lending your name and skills to making snoopers out of college students?"

"Learners," said Duckworth. "Students of fact. History as we know it is always written—or at least censored—by the winners. Who knows what squalid details my crew will uncover—not only scandals, but suppression of vital information about how gov-

ernments really work. It may shake the corrupters of this republic and even alter international alignments—"

I had been scratching my chin thoughtfully.

"I never thought of that," I said when Duckworth abruptly broke off. "Your youngsters might be the salvation of us all. At last we'd have a clear picture of who and what we all are."

"I'm afraid I was a little carried away just then," said Duckworth, blushing. "Actually it'll never happen that way. But I'm playing for more realistic stakes."

"You mean that the students won't be allowed to carry out their delving? Then why did you initiate this affair?" And then the insight hit me. "You want to make it impossible for Counterspy to use your device," I said.

Duckworth seized my hand and shook it warmly.

"Sometimes," he said, "your ability to grasp elementary strategy truly amazes me."

Four months later, in a move unprecedented in international annals, every member of the United Nations signed a protocol banning the use of the Sound Probe. Duckworth was given one of the pens used in the signing. Afterward we withdrew to the backyard of my home where I fed a slow fire with the drawings of the Sound Probe as Duckworth toasted marshmallows. ★

EDITOR'S PAGE

(Continued from page 2)

gram have already been felt.

A list of potential Receivers *is* kept at transplant centers from coast to coast—and you or I or both of us might one day play on that side, too.

Mr. Pendzick was a kidney transplant recipient shortly before the Foundation's program was launched; his donor was his mother, but he feels all humans might one day come to relate to one another as if we all mattered.

It seems a game to play—unless we fear some evil.

• "Proactive inhibition" is a little-known but apparently fairly universal brain phenomenon plaguing mankind. Laboratory tested, it manifests itself in the tendency of an earlier memory—or bit of learning—to suppress or interfere with a later one.

That we live on a destructible—even frail—planet has become evident to nearly everyone, but for most of us the earliest memory was of a firm Earth, an impenetrable sky and an unshakable contract with what had gone before. It has made it difficult for many to grasp that since then we've become, as a species, the most powerful natural force rampant on the

planet—and that forces of nature know no contracts, obey no laws save their own.

This may have been the major lesson members of the newer generation—whose earliest awareness embraced the atom, war and human divisionism as compulsory national pastimes—learned in the confused and tragic Jackson and Kent State campus confrontations in the spring of 1970. And in the bitter aftermaths.

Since then the irreplaceable young have been silent—perhaps thoughtfully storing proactive early memories that will one day shape and rule a saner world.

• The current economy has caught up with us. Not only has distribution tightened, but printing costs have almost doubled since we took over the *Galaxy* publications two years ago, forcing us once again to publish bimonthly. The latest blow came too suddenly for explanations to be made in the last issue.

A magazine is as good as its authors and its audience make it. Authors' rates have not been affected, nor story lengths—type does have some elasticity. And we are inviting (see page 3) fuller participation by our distinguished readership. That's you.

—JAKOBSSON

SIN OF OMISSION

Like the front cover of the May-June Galaxy, our face is mainly red.

So we apologize. Why? Because our good friends and yours, the Science Fiction Book Club, ran an advertisement on the back cover. And the printer omitted the very thing that would have made the advertisement intelligible!

Horrendous, say we. Mysterious, say you.

Yes. But the mystery is easily cleared up. Just closely examine the advertisement on the back cover of this issue—and you'll see what was missing from the back cover of the May-June issue. That's right. An object that can be described as a "black dot, circle, sphere, neutron, eye pupil, tunnel opening, planet, hole, cosmos." Wow!

Again, our apologies to you, treasured readers, and to all others concerned.

—THE EDITORS

THIS SPACE CONTRIBUTED BY THE PUBLISHER AS A PUBLIC SERVICE

MARGUERITE PIAZZA. PHOTOGRAPHED BY BERT STERN



The doctor told me, "Marguerite, you can be alive and ugly, or beautiful and dead!"

The day I first noticed the small pink spot on my cheek, I had other things on my mind. The New York papers said, "Marguerite Piazza opens at the Persion Room". I covered the spot with makeup, walked out into the spotlight, and forgot it—forgot everything—in the joy of singing.

It wasn't until the spot began to spread, that I went to a cancer specialist. The day the doctor told me I'd have to have radical face surgery, I was sure my career was over. It was no longer a matter of saving my looks. Just of saving my life.

They kept the mirrors in my hospital room covered for a week. And yet today, thanks to the fantastic skill of the surgeons, I sing in the spotlight again. I let myself be photographed full-face by a famous photographer of glamorous women. And I am alive.

So now you know why I am appealing to you on behalf of the American Cancer Society. To give money. To get regular checkups. And to pay attention to cancer's warning signals.

You know, there's something much worse than finding out you have cancer. And that's *not* finding out.

American Cancer Society
We want to wipe out cancer in your lifetime.

What is it?

A black dot, circle, sphere, neutron, eye pupil, tunnel opening, planet, hole, cosmos ?

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